OCTOBER 5, 1953

"Red Ball" Freight Control . . . p. 62

RAILWAY AGE

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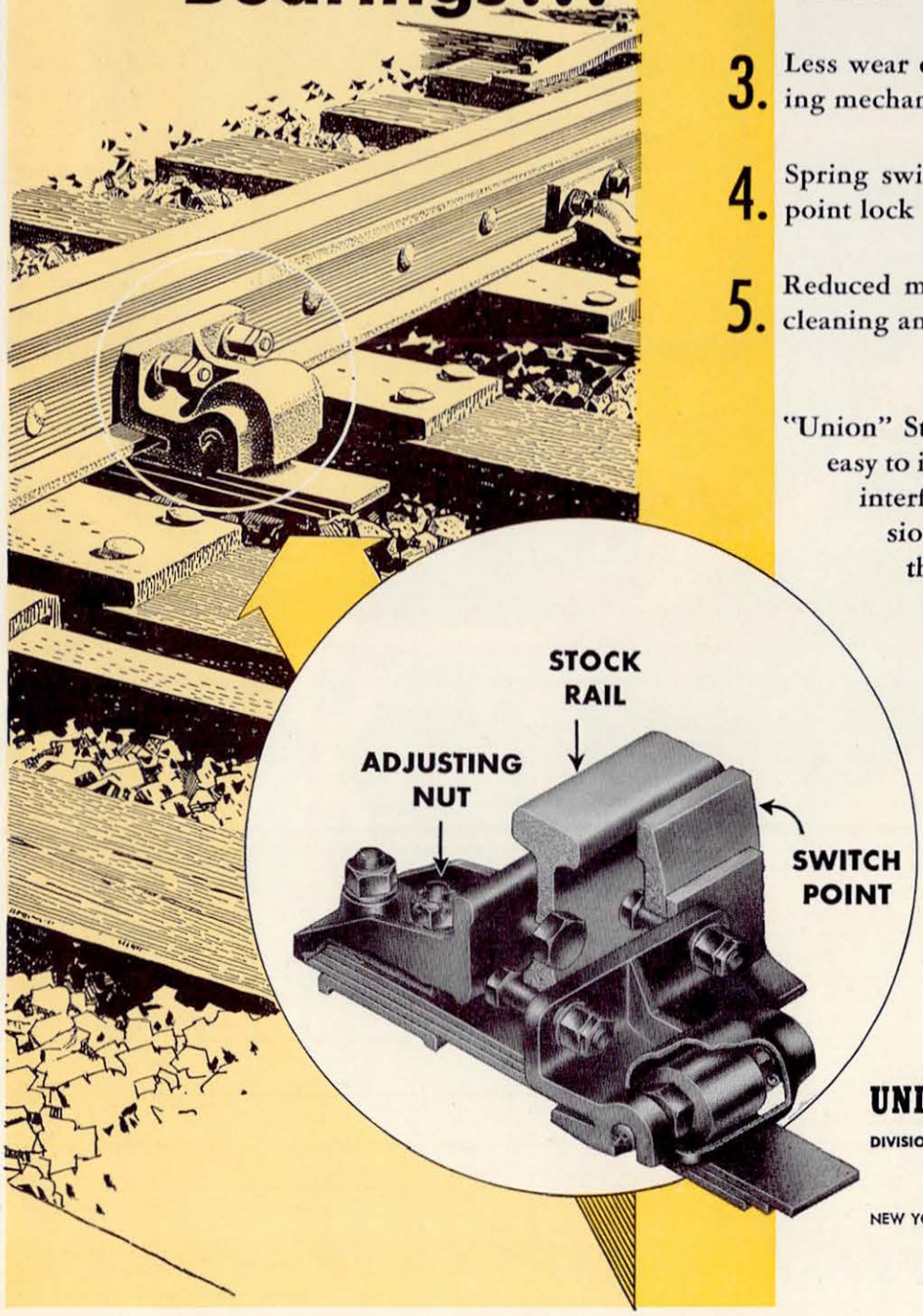

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RAILWAY AGE

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Oct. 5, 1953 **Vol. 135, No. 14**

Week at a Glance

Shipper-carrier cooperation— and its value to both—received heavy emphasis at the annual meeting of the Associated Traffic Clubs. **11**

The passenger deficit, and proposed diversion of some first-class mail from rail to air, occupied much of the attention of state utility commissioners in their recent annual meeting at New York. **12**

Railroad men find it hard to follow the "logic" of the I.C.C.'s action extending Service Order No. 866 while Order No. 865 was permitted to expire September 30. No. 865 was the penalty-demurrage order applicable against shippers, and No. 866 is the operating-rules order applicable against railroads. Both were designed to expedite movement of cars. They looked like an inseparable pair which would stay in or go out only together. **16**

Electric diesel-electric locomotives are performing successfully under difficult operating conditions in Chilean mining service. **19**

RAILWAY AGE FORUM:

Urban traffic congestion could be alleviated, if not eliminated, by more public attention to mass transportation and less to individual transportation. **57**

A new experiment in "community relations" is now under way in four key cities in territory covered by the Eastern Railroad Presidents Conference. **58**

The Rock Island's Atlantic cut-off, opened last month, is one of the longest line changes to be completed in recent years. **59**

Centralized machine car accounting, recently put into use on the Santa Fe, will benefit the railroad's own

Current Statistics

Operating revenues, seven months	
1953	$ 6,253,137,382
1952	5,911,265,980
Operating expenses, seven months	
1953	$ 4,724,251,168
1952	4,634,987,983
Taxes, seven months	
1953	$ 749,886,845
1952	671,321,739
Net railway operating income, seven months	
1953	$ 643,257,679
1952	503,724,404
Net income, estimated, seven months	
1953	$ 490,000,000
1952	348,000,000
Average price railroad stocks	
September 29, 1953	58.21
September 30, 1952	62.95
Carloadings revenue freight	
Thirty-eight weeks, 1953	28,248,330
Thirty-eight weeks, 1952	27,155,831
Average daily freight car surplus	
September 26, 1953	8,383
September 27, 1952	3,247
Average daily freight car shortage	
September 26, 1953	3,769
September 27, 1952	18,558
Freight cars delivered	
August 1953	5,557
August 1952	4,537
Freight cars on order	
September 1, 1953	45,735
September 1, 1952	95,761
Freight cars held for repairs	
September 1, 1953	97,013
September 1, 1952	108,222
Average number of railroad employees	
Mid-August, 1953	1,234,994
Mid-August, 1952	1,221,473

RAILWAY AGE IS A MEMBER OF ASSOCIATED BUSINESS PUBLICATIONS (A.B.P.) AND AUDIT BUREAU OF CIRCULATION (A. B. C.) AND IS INDEXED BY THE INDUSTRIAL ARTS INDEX AND BY THE ENGINEERING INDEX SERVICE. RAILWAY AGE INCORPORATES THE RAILWAY REVIEW, THE RAILROAD GAZETTE, AND THE RAILWAY AGE GAZETTE.

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Week at a Glance CONTINUED

traffic and transportation departments and further improve its "Red Ball Information Service" to shippers. **62, 67, 69, 71**

Mechanized mail handling facilities, just completed at St. Louis Union Station, will permit faster and more economical performance of one of the country's biggest mail handling jobs. **72**

Spanish Talgo trains, on the basis of three years' experience, have proved safe, reliable and sufficiently stable to permit important schedule reductions. **77**

"To get truckers and railroads working together" —and "out of each other's hair"—is one of the avowed objectives of the General Motors Corporation's new plan—worked out over the past two years—for railway transportation of highway semi-trailers, which was unveiled last week at LaGrange, Ill. GM, its executives emphasized, has no particular desire to go into the car-building business, as such, but stands ready to build its new trailer-transport car for any railroads interested in purchasing it. **80, 82**

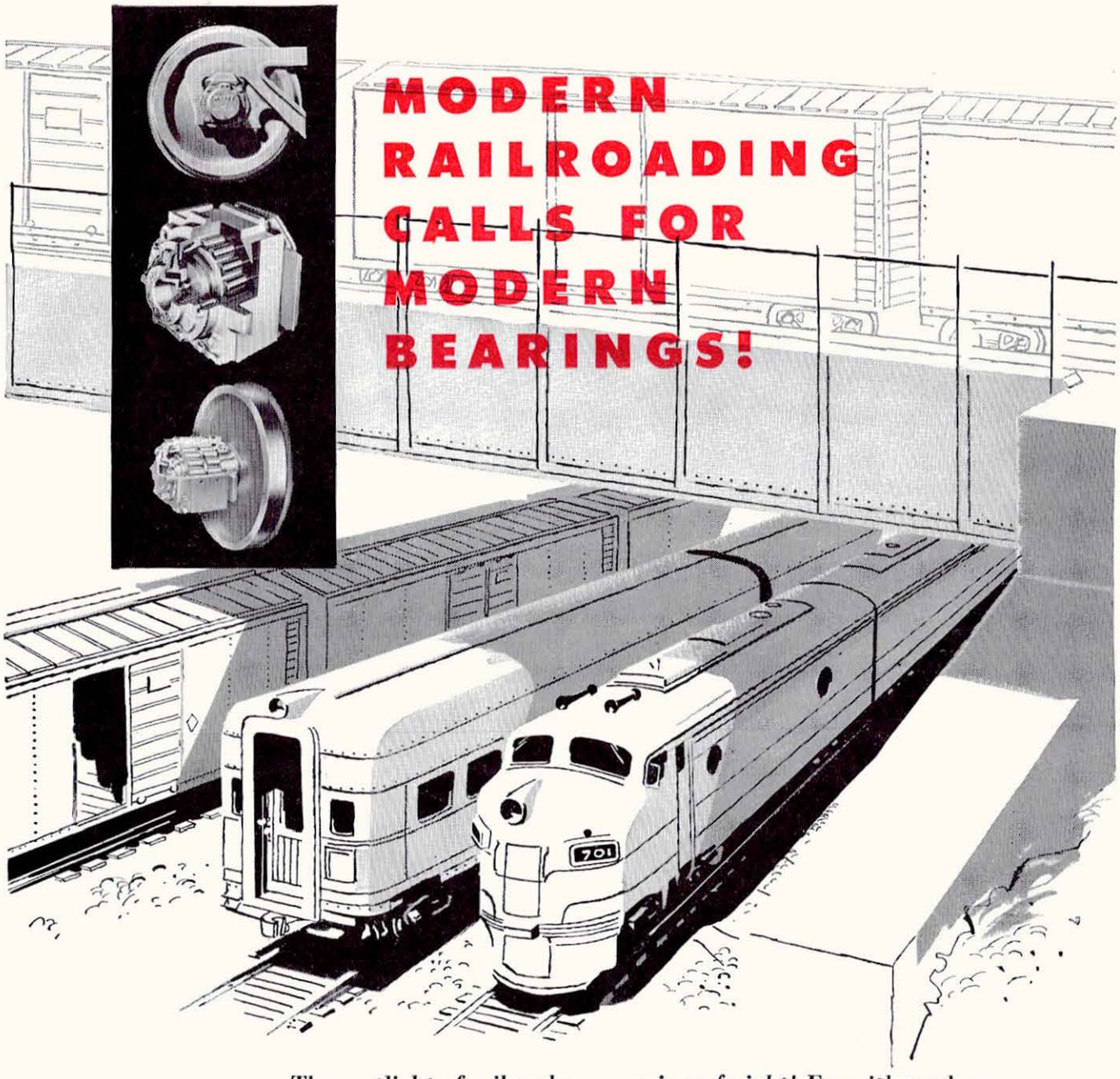
Fourteen railroads have received Harriman medals or certificates from the American Museum of Safety for their 1952 safety records. **84**

Economics and electronics came in for the lion's share of attention at last week's St. Louis meeting of the A.A.R.'s Signal Section. **86**

BRIEFS

Dr. Julius H. Parmelee, vice-president of the A.A.R. and director of its Bureau of Railway Economics, will become 70 years old October 10. A.A.R. rules will require his retirement at the end of that month.

Consolidation of facilities, without impairment of competition, is something railroads ought to look into, according to Paul E. Feucht, president of the Chicago



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Week at a Glance CONTINUED

& North Western, in his September 15 talk before the Coordinated Mechanical Associations. "We should," he said, "take another look at those situations where tracks parallel each other for miles, neither one being utilized anywhere near capacity. The same holds true of stations and other facilities that can be consolidated without interfering in the least with our ability to compete with one another."

Another "streamlining" step by the I.C.C. is seen in the recent shuffle of division assignments. For the first time, effective October 5, the commission chairman will be free to spend full time on administrative and legislative chores. His only division assignment: "Ex officio" to Division 1, which handles administrative matters.

Defense Transport Administration may soon reveal added information about its proposed "formula" for persuading railroads to buy more freight cars. Administrator Knudson has indicated he will discuss the formula in an October 8 speech in Omaha.

Another industrial district opens in the Dallas metropolitan area October 7. This one—billed as "the largest and most modern of its kind in the nation"—is a 1,200-acre project that will represent a sponsor's investment of $6 million—not including land costs—when it is fully developed. Known as the Brook Hollow Industrial District, it is sponsored by Windsor Properties, Inc., and served by the Missouri-Kansas-Texas.

The I.C.C. got a setback last week when a three-judge district court in Los Angeles knocked down a commission ruling which authorized lower railroad rates on petroleum moving into Arizona. Railroads proposed the rate cut to meet threatened pipeline competition, and the I.C.C. gave its ill-fated approval in an order issued last January.

Commissioner Owen Clarke of the I.C.C. has been appointed to the executive committee of the National Association of Railroad and Utilities Commissioners. He succeeds former I.C.C. Commissioner William E. Lee.

More than half of all Central of Georgia employees now own stock in the company, as a result of a stock purchase plan announced in July and concluded at the end of August. The 25,000 shares of common stock made available, at $34.50 per share, were purchased by 2,685 individuals.

No wage increase — but substantial "fringe" benefits — will probably be sought by "non-op" unions representing some 150,000 Canadian railway employees, when present contracts expire next December 1. The unions' decision not to seek a general wage increase is reportedly based on a feeling that "wage increases at this time, followed by freight rate increases, would not be a contribution to a stable economy." Operating employees, whose contracts expire later than those of the non-operating group, are not expected to be involved in the new negotiations.

Concern over a small, but growing shortage of qualified maintainers of electronics equipment has brought a group of signal and communications engineers from midwestern roads to study the training facilities of a large technical school in Chicago. Growing use of train radio and other broadcast equipment has upped the need for repairmen who must be licensed for certain phases of this work by the Federal Communications Commission. The engineers considered the possibility of some sort of a railroad employee training program —perhaps subsidized by individual roads— at commercial schools of this type.

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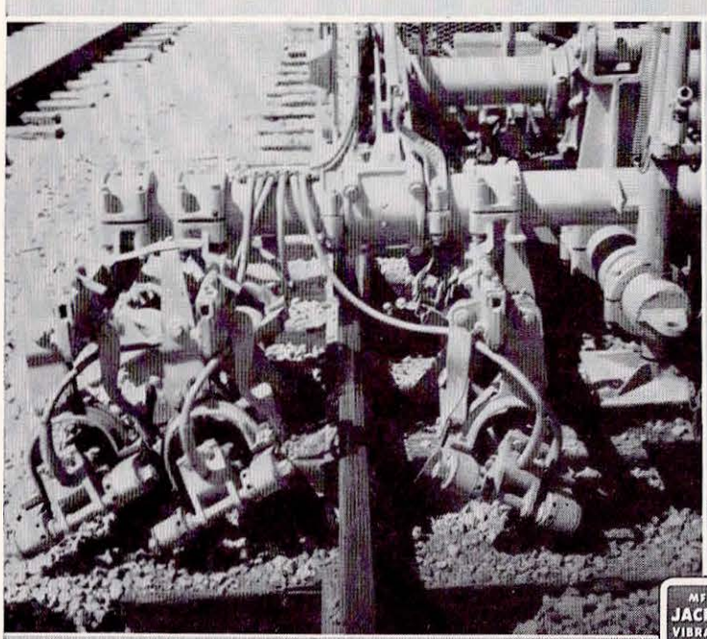

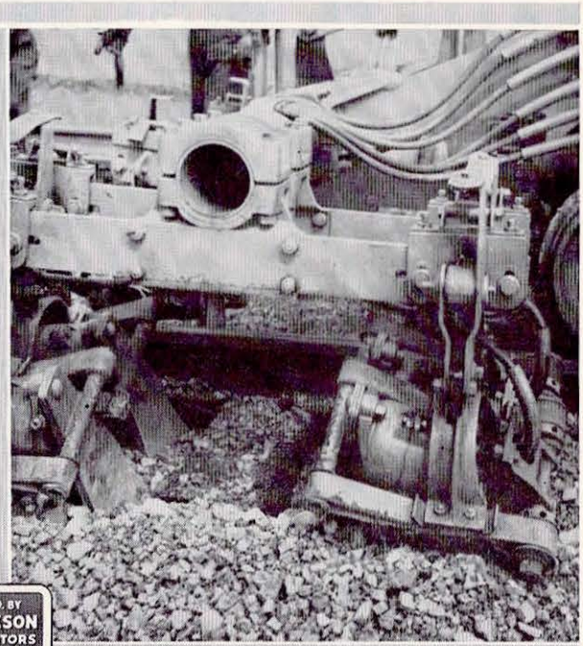

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"Traffic Won't Bear Much More"

Value of shipper-carrier cooperation stressed at annual meeting of Associated Traffic Clubs

Enlightened self-interest on the part of both shippers and carriers, and real determination of "what the traffic will bear," ultimately will give the country the kind of low-cost, efficient transportation it needs and wants. So said A. H. Brown, president of the National Industrial Traffic League and transportation commissioner of the Cleveland Chamber of Commerce, at the 30th annual meeting of the Associated Traffic Clubs of America at Boston, September 22.

Mr. Brown was one of four men who spoke to the A.T.C. on the subject of "shipper-carrier cooperation in transportation," which had been selected as the theme of the meeting. The others were J. W. Phipps, Jr., vice-president—traffic, Baltimore & Ohio; Walter F. Mullady, president, Decatur Cartage Company, and chairman of the board of American Trucking Associations; and Robert J. Bayer, editor, Traffic World, and president, American Society of Traffic & Transportation.

The word "cooperation," said Mr. Brown, all too often means a one-sided deal, with all the "give" from one side and no "take" in return. It is the job of both groups, he continued, to determine what traffic will bear in rates, service and regulation, and then to see that "traffic" does bear the "assessment." The N.I.T. League president declared there are still too many "beautiful" paper rates which just don't move traffic; on the other hand, he decried the practice of playing off various modes of transportation against one another to get a "nonsensically low rate." Neither of these seems to him to be "enlightened self-interest." Cheap transportation, he added, frequently means "shoddy."

Service-wise, Mr. Brown said, too many carriers apparently believe the only way to make money is to save it by cutting services to the bone. The object of the N.I.T. League is—and that of all shippers should be—to promote sound, economical transportation. But "that transportation which is weak and tottering on the brink of bankruptcy is not sound, and that transportation which is inadequate to shippers' needs is not economical, regardless of the thrift its management observes."

Regulation—Speaking on what traffic would bear in the field of regulation Mr. Brown said: "I . . . believe we are in danger of smothering . . . ourselves in the confusion of over-control. It strikes me that some of the so-called rights which are on our statute books for protection of the shipping public are theoretical rather than real in some cases and have become positive liabilities in others. I do not believe traffic will bear some of them much longer. On the other hand, the freedom which some of you carriers seek would slap you down, if it were ever to be attained. There is a great deal of noise and no little nonsense in the commonly heard demand for equality of regulation . . . there should be fair and equal opportunity . . . but it is more than doubtful that that equality should be established by adding to the burden of laws which already oppresses both shipper and carrier."

Through media such as the A.T.C., Mr. Brown concluded, where shipper and carrier are getting together and learning something about one another's problems, there is real hope that cooperation between carriers and their customers will become increasingly fruitful.

Mr. Phipps told his audience the railroads' post-war modernization program was tangible proof of their efforts to cooperate in providing the kind of service patrons want. He cited also the efforts of many railroads in training their traffic department people to be salesmen who can help their customers. In the line of successful joint efforts of carriers and their patrons to bring about better transportation conditions, he mentioned the perfect shipping month campaign, the clean car campaign and the tariff simplification program. Shippers, in all these cases, Mr. Phipps said, have seen the advantage of cooperating with carriers. The B&O vice-president especially praised the shippers for their initiative in the work of tariff simplification.

P A R—Mr. Mullady mentioned that, at the moment, the greatest need for trucker-patron cooperation is in support of "Project Adequate Roads," so the trucking industry can handle its part of the estimated 25 per cent increase in freight traffic which will hit the country's transportation system in the next 20 years. The many billions of dollars needed to do the job, Mr. Mullady went on, should be secured by: (1) using all highway taxes for building and maintaining highways; (2) turning over to the states all federal gasoline taxes, for use solely for highway and street building and maintenance; and (3) increasing gasoline taxes and license fees—the former to be an across-the-board increase, but with the latter resting most heavily on trucks. At the end of the project, Mr. Mullady stipulated, these taxes should be restored to the pre-project level.

Education—Mr. Bayer said his organization, the A.S.T.&T., through its efforts in educating the younger generation of people coming into the traffic and transportation field, is giving

A.A.R. DIRECTORS PREVIEW WESTINGHOUSE AIR BRAKE'S NEW RAILROAD MOVIE

The board of directors of the Association of American Railroads met in Pittsburgh September 25—instead of in Washington, as customary—the change having been made to enable the board to be guests of honor at a luncheon in Pittsburgh, at which the Westinghouse Air Brake Company gave the premiere showing of its new railroad film, "At This Moment."

The luncheon was given at the Hotel William Penn and was attended by some 275 guests—including the A.A.R. board and other leading railroad officers, three Interstate Commerce Commissioners, and important members of the Pittsburgh business community.

The new motion picture aims to portray the position of the railroad industry in the national economy—its importance to the maintenance of living standards and to the national defense—and also to show some of the great improvements the railroads are making to keep their service thoroughly modern. The film is designed for general public showing, and is entertaining and informative. It is non-controversial; and is non-commercial, in that no specific products or services are promoted. The Westinghouse Company made the film, as President Edward O. Boshell explained, as a contribution toward better public understanding of the importance of the railroad industry to the national welfare. The film was produced for Westinghouse by the Jam Handy Organization, Inc., of Detroit.

On the same day, September 25, the visiting railroad executives were guests at dinner at the Duquesne Club of five steel companies.

them a greater understanding of business in general and of transportation in particular. This, he said, should lead to more real statesmanship and hence to real cooperation. More and more young people are taking the society's examinations, Mr. Bayer said, and the day probably will come when anyone going into industrial traffic will almost have to be certificated by the society.

Speaker at the annual dinner of the A.T.C. was Vice-Admiral E. L. Cochrane, U. S. Navy (ret.) and present dean of engineering of the Massachusetts Institute of Technology. In the light of the expected great increase in tonnage and persons to be transported, Admiral Cochrane said, greater coordination of the various modes of transportation is desirable if not mandatory. It is too bad, the admiral stated, that a transportation policy has been developed which does not permit greater integration of the various means of transport under one management. Such integration, which will come only with much needed enlightened regulation, is highly desirable, he concluded.

Elected to the presidency of A.T.C. for the succeeding year was E. G. Siedle, general traffic manager, Armstrong Cork Company, Lancaster, Pa., who was executive vice-president under retiring President F. E. Luebbe, general traffic manager, Kroger Company, Cincinnati. The new executive vice-president is L. A. Pomeroy, Jr., traffic manager, National Malleable & Steel Castings Co., Cleveland. Reelected to the secretaryship was R. A. Ellison, manager, transportation department, Cincinnati Chamber of Commerce.

Law and Regulation

Passenger Deficit Still a Problem

N.A.R.U.C. special committee reports some progress, but also "disappointments"—Association would postpone diversion of first-class mail to air

Further consideration of the passenger deficit problem; adoption of a resolution urging "postponement" of diversion from rail to air of first-class mail, and of another aimed at public utility work stoppages; and discussion of the "long-and-short-haul clause" highlighted, from the railroad standpoint, the 65th annual convention of the National Association of Railroad and Utilities Commissioners, which was held at New York, September 21-24.

The air-mail resolution was presented by the association's Special Committee on Cooperation with the Interstate Commerce Commission in the Study of the Railroad Passenger Deficit Problem. It reflected that committee's feeling that "partial and contingent diversion [of first-class mail from rail to air] would, to the extent it is implemented, put the railroads virtually in a standby position, reduce their passenger train revenues, increase the unit cost of their passenger service operations and thereby tend to aggravate the passenger deficit problem, which is already recognized as the most serious and challenging problem in the regulatory field."

Higher Rates; Poorer Service—The resolution, however, had a far broader base than the effect on railroad passenger service of "partial and contingent diversion" of first-class mail; such diversion, it also said:

- "Would increase the Post Office Department's cost of transporting the mail, without improvement in service upon which the public may rely;
- "Would discriminate against all users of regular air mail service who would continue to pay the full six-cent air mail rate, and against all users of first-class mail other than those in the large cities selected for the intended preferred service; and
- "May ultimately result in substantial increase in postage rates as well as in the postal deficit."

For those reasons, the association went on record as favoring "postponement" of the "proposed diversion" until

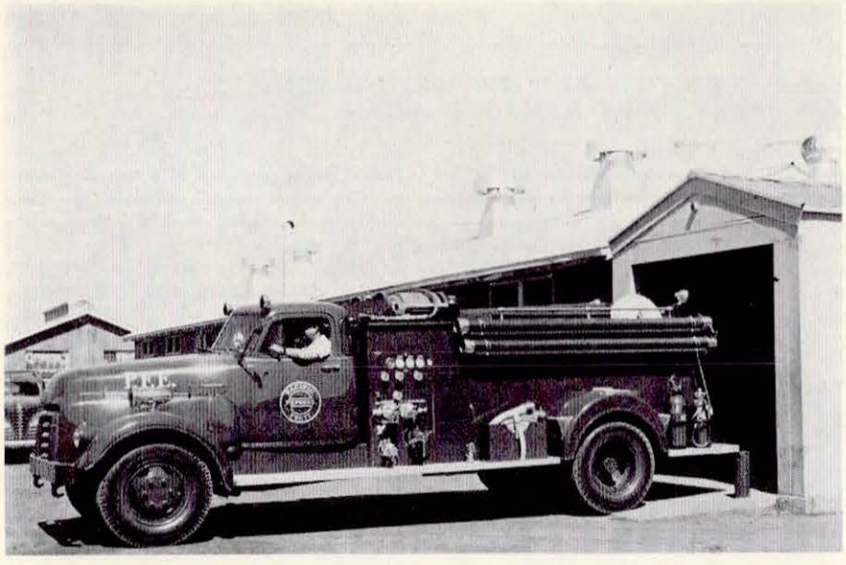
Members representing state commissions on the N.A.R.U.C.'s Special Committee on Cooperation with the I.C.C. in the Study of the Railroad Passenger Deficit Problem, whose report is quoted in the accompanying article, are: Walter R. McDonald, Georgia, chairman; Eugene Loughlin, Connecticut; Ray O. Martin, Ohio; Hammond Fowler, Tennessee; Elmer Cart, North Dakota; H. McKay Cary, Missouri; Wade O. Martin, Louisiana; Ray O. Weems, Oklahoma; Kenneth Potter, California; John H. Carkin, Oregon; Alton Massey, Mississippi; and David O. Benson, Georgia, secretary.

In addition, the following representatives of cooperating organizations have been designated to work with the committee:

***By the I.C.C.*—Commissioners Alldredge, Arpaia, Elliott and Splawn (retired).**

***By railroads*—David I. Mackie, Eastern Railroad Presidents Conference; D. P. Loomis, Association of Western Railways, and Jervis Langdon, Jr., Association of Southeastern Railroads.**

***By railway labor organizations*—H. F. Hempley, Brotherhood of Locomotive Engineers; Roy Hughes, Order of Railway Conductors of America; W. P. Kennedy, Brotherhood of Railway Trainmen; D. B. Robertson (retired), Brotherhood of Locomotive Firemen; A. J. Glover, Switchmen's Union of North America: George M. Harrison, Brotherhood of Railway Clerks; and G. E. Leighty, Order of Railroad Telegraphers.**



MORE FIRE PROTECTION has been provided for the Roseville, Cal., car shops of the Pacific Fruit Express Company. Recently installed equipment includes this modern fire truck built by the John Bean division of the Food Machinery & Chemical Corp., San Jose, Cal. Constructed over a standard General Motors chassis, the truck is equipped for both high pressure fog and volume pumping service.

"Traffic Won't Bear Much More"

Value of shipper-carrier cooperation stressed at annual meeting of Associated Traffic Clubs

Enlightened self-interest on the part of both shippers and carriers, and real determination of "what the traffic will bear," ultimately will give the country the kind of low-cost, efficient transportation it needs and wants. So said A. H. Brown, president of the National Industrial Traffic League and transportation commissioner of the Cleveland Chamber of Commerce, at the 30th annual meeting of the Associated Traffic Clubs of America at Boston, September 22.

Mr. Brown was one of four men who spoke to the A.T.C. on the subject of "shipper-carrier cooperation in transportation," which had been selected as the theme of the meeting. The others were J. W. Phipps, Jr., vice-president—traffic, Baltimore & Ohio; Walter F. Mullady, president, Decatur Cartage Company, and chairman of the board of American Trucking Associations; and Robert J. Bayer, editor, Traffic World, and president, American Society of Traffic & Transportation.

The word "cooperation," said Mr. Brown, all too often means a one-sided deal, with all the "give" from one side and no "take" in return. It is the job of both groups, he continued, to determine what traffic will bear in rates, service and regulation, and then to see that "traffic" does bear the "assessment." The N.I.T. League president declared there are still too many "beautiful" paper rates which just don't move traffic; on the other hand, he decried the practice of playing off various modes of transportation against one another to get a "nonsensically low rate." Neither of these seems to him to be "enlightened self-interest." Cheap transportation, he added, frequently means "shoddy."

Service-wise, Mr. Brown said, too many carriers apparently believe the only way to make money is to save it by cutting services to the bone. The object of the N.I.T. League is—and that of all shippers should be—to promote sound, economical transportation. But "that transportation which is weak and tottering on the brink of bankruptcy is not sound, and that transportation which is inadequate to shippers' needs is not economical, regardless of the thrift its management observes."

Regulation—Speaking on what traffic would bear in the field of regulation Mr. Brown said: "I . . . believe we are in danger of smothering . . . ourselves in the confusion of over-control. It strikes me that some of the so-called rights which are on our statute books for protection of the shipping public are theoretical rather than real in some cases and have become positive liabilities in others. I do not believe traffic will bear some of them much longer. On the other hand, the freedom which some of you carriers seek would slap you down, if it were ever to be attained. There is a great deal of noise and no little nonsense in the commonly heard demand for equality of regulation . . . there should be fair and equal opportunity . . . but it is more than doubtful that that equality should be established by adding to the burden of laws which already oppresses both shipper and carrier."

Through media such as the A.T.C., Mr. Brown concluded, where shipper and carrier are getting together and learning something about one another's problems, there is real hope that cooperation between carriers and their customers will become increasingly fruitful.

Mr. Phipps told his audience the railroads' post-war modernization program was tangible proof of their efforts to cooperate in providing the kind of service patrons want. He cited also the efforts of many railroads in training their traffic department people to be salesmen who can help their customers. In the line of successful joint efforts of carriers and their patrons to bring about better transportation conditions, he mentioned the perfect shipping month campaign, the clean car campaign and the tariff simplification program. Shippers, in all these cases, Mr. Phipps said, have seen the advantage of cooperating with carriers. The B&O vice-president especially praised the shippers for their initiative in the work of tariff simplification.

PAR—Mr. Mullady mentioned that, at the moment, the greatest need for trucker-patron cooperation is in support of "Project Adequate Roads," so the trucking industry can handle its part of the estimated 25 per cent increase in freight traffic which will hit the country's transportation system in the next 20 years. The many billions of dollars needed to do the job, Mr. Mullady went on, should be secured by: (1) using all highway taxes for building and maintaining highways; (2) turning over to the states all federal gasoline taxes, for use solely for highway and street building and maintenance; and (3) increasing gasoline taxes and license fees—the former to be an across-the-board increase, but with the latter resting most heavily on trucks. At the end of the project, Mr. Mullady stipulated, these taxes should be restored to the pre-project level.

Education—Mr. Bayer said his organization, the A.S.T.&T., through its efforts in educating the younger generation of people coming into the traffic and transportation field, is giving

A.A.R. DIRECTORS PREVIEW WESTINGHOUSE AIR BRAKE'S NEW RAILROAD MOVIE

The board of directors of the Association of American Railroads met in Pittsburgh September 25—instead of in Washington, as customary—the change having been made to enable the board to be guests of honor at a luncheon in Pittsburgh, at which the Westinghouse Air Brake Company gave the premiere showing of its new railroad film, "At This Moment."

The luncheon was given at the Hotel William Penn and was attended by some 275 guests—including the A.A.R. board and other leading railroad officers, three Interstate Commerce Commissioners, and important members of the Pittsburgh business community.

The new motion picture aims to portray the position of the railroad industry in the national economy—its importance to the maintenance of living standards and to the national defense—and also to show some of the great improvements the railroads are making to keep their service thoroughly modern. The film is designed for general public showing, and is entertaining and informative. It is non-controversial; and is non-commercial, in that no specific products or services are promoted. The Westinghouse Company made the film, as President Edward O. Boshell explained, as a contribution toward better public understanding of the importance of the railroad industry to the national welfare. The film was produced for Westinghouse by the Jam Handy Organization, Inc., of Detroit.

On the same day, September 25, the visiting railroad executives were guests at dinner at the Duquesne Club of five steel companies.

them a greater understanding of business in general and of transportation in particular. This, he said, should lead to more real statesmanship and hence to real cooperation. More and more young people are taking the society's examinations, Mr. Bayer said, and the day probably will come when anyone going into industrial traffic will almost have to be certificated by the society.

Speaker at the annual dinner of the A.T.C. was Vice-Admiral E. L. Cochrane, U. S. Navy (ret.) and present dean of engineering of the Massachusetts Institute of Technology. In the light of the expected great increase in tonnage and persons to be transported, Admiral Cochrane said, greater coordination of the various modes of transportation is desirable if not mandatory. It is too bad, the admiral stated, that a transportation policy has been developed which does not permit greater integration of the various means of transport under one management. Such integration, which will come only with much needed enlightened regulation, is highly desirable, he concluded.

Elected to the presidency of A.T.C. for the succeeding year was E. G. Siedle, general traffic manager, Armstrong Cork Company, Lancaster, Pa., who was executive vice-president under retiring President F. E. Luebbe, general traffic manager, Kroger Company, Cincinnati. The new executive vice-president is L. A. Pomeroy, Jr., traffic manager, National Malleable & Steel Castings Co., Cleveland. Reelected to the secretaryship was R. A. Ellison, manager, transportation department, Cincinnati Chamber of Commerce.

Law and Regulation

Passenger Deficit Still a Problem

N.A.R.U.C. special committee reports some progress, but also "disappointments"—Association would postpone diversion of first-class mail to air

Further consideration of the passenger deficit problem; adoption of a resolution urging "postponement" of diversion from rail to air of first-class mail, and of another aimed at public utility work stoppages; and discussion of the "long-and-short-haul clause" highlighted, from the railroad standpoint, the 65th annual convention of the National Association of Railroad and Utilities Commissioners, which was held at New York, September 21-24.

The air-mail resolution was presented by the association's Special Committee on Cooperation with the Interstate Commerce Commission in the Study of the Railroad Passenger Deficit Problem. It reflected that committee's feeling that

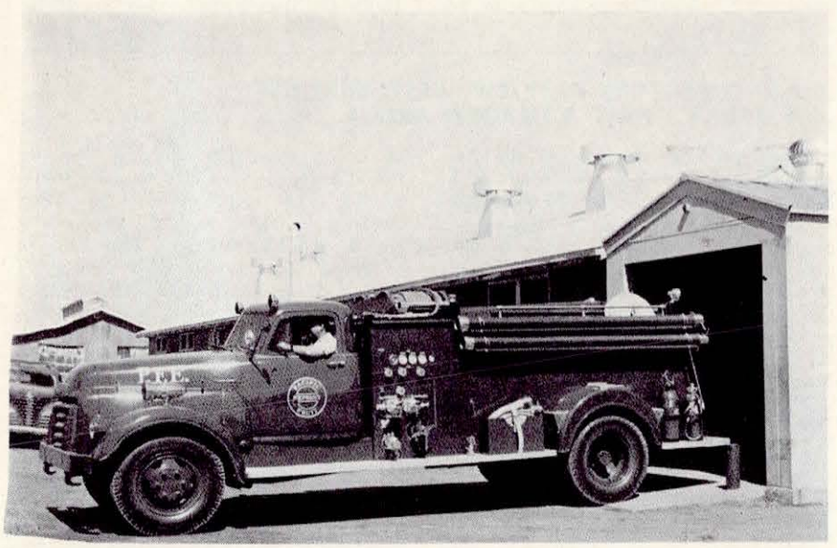
Members representing state commissions on the N.A.R.U.C.'s Special Committee on Cooperation with the I.C.C. in the Study of the Railroad Passenger Deficit Problem, whose report is quoted in the accompanying article, are: Walter R. McDonald, Georgia, chairman; Eugene Loughlin, Connecticut; Ray O. Martin, Ohio; Hammond Fowler, Tennessee; Elmer Cart, North Dakota; H. McKay Cary, Missouri; Wade O. Martin, Louisiana; Ray O. Weems, Oklahoma; Kenneth Potter, California; John H. Carkin, Oregon; Alton Massey, Mississippi; and David O. Benson, Georgia, secretary.

In addition, the following representatives of cooperating organizations have been designated to work with the committee:

***By the I.C.C.*—Commissioners Alldredge, Arpaia, Elliott and Splawn (retired).**

***By railroads*—David I. Mackie, Eastern Railroad Presidents Conference; D. P. Loomis, Association of Western Railways, and Jervis Langdon, Jr., Association of Southeastern Railroads.**

***By railway labor organizations*—H. F. Hempley, Brotherhood of Locomotive Engineers; Roy Hughes, Order of Railway Conductors of America; W. P. Kennedy, Brotherhood of Railway Trainmen; D. B. Robertson (retired), Brotherhood of Locomotive Firemen; A. J. Glover, Switchmen's Union of North America; George M. Harrison, Brotherhood of Railway Clerks; and G. E. Leighty, Order of Railroad Telegraphers.**



MORE FIRE PROTECTION has been provided for the Roseville, Cal., car shops of the Pacific Fruit Express Company. Recently installed equipment includes this modern fire truck built by the John Bean division of the Food Machinery & Chemical Corp., San Jose, Cal. Constructed over a standard General Motors chassis, the truck is equipped for both high pressure fog and volume pumping service.

"partial and contingent diversion [of first-class mail from rail to air] would, to the extent it is implemented, put the railroads virtually in a standby position, reduce their passenger train revenues, increase the unit cost of their passenger service operations and thereby tend to aggravate the passenger deficit problem, which is already recognized as the most serious and challenging problem in the regulatory field."

Higher Rates; Poorer Service—The resolution, however, had a far broader base than the effect on railroad passenger service of "partial and contingent diversion" of first-class mail; such diversion, it also said:

- "Would increase the Post Office Department's cost of transporting the mail, without improvement in service upon which the public may rely;
- "Would discriminate against all users of regular air mail service who would continue to pay the full six-cent air mail rate, and against all users of first-class mail other than those in the large cities selected for the intended preferred service; and
- "May ultimately result in substantial increase in postage rates as well as in the postal deficit."

For those reasons, the association went on record as favoring "postponement" of the "proposed diversion" until

"FICTIONAL ECONOMY"

"Of extreme concern to the railroads is the loss to non-scheduled air carriers of military personnel moving under government orders, i.e., group troop movements from one military installation to another. In October 1951 they transported military traffic in groups a total of 15,117,268 passenger-miles. This constituted only 8.9 per cent of all organized military traffic. One year later, in October 1952, their traffic amounted to 26,834,507 passenger-miles, or 25 per cent of the total. By February 1953 military traffic of the irregulars had mounted to 33,396,769 passenger-miles, or 25.6 per cent of all organized traffic.

"Transportation departments of the armed forces have often cited the low charges of non-scheduled air carriers as justification for using the services of these carriers. It is extremely difficult to compare such fares with those maintained by rail carriers, for the air charges are often determined by competitive bidding and are influenced to a great degree by the size of the plane and the amount of 'deadhead' mileage necessary to get the carriers' equipment to the point of origin. . . .

"Speed is the most obvious advantage held by the non-scheduled air carriers, and while speed is of great importance in time of acute need for troops, it is difficult to rationalize its value for routine transfers of military personnel. Dependability and safety of surface travel would appear to far outweigh the advantages of mere speed of transportation. Safety statistics for the year 1952 show that the irregular, non-scheduled air carriers suffered 2.08 fatalities per 100 million passenger-miles—more than 52 times as high as the rail fatality ratio of 0.04. . . .

"Non-scheduled air carriers in many instances merely lease their equipment from the so-called surplus stock of the Air Force—actually leasing equipment from the very agency for which they transport personnel for hire. As a result they are relieved from all property taxation on equipment. The ridiculously low rental rate at which these planes have been leased to the non-skeds bears little if any relation to the actual value of the aircraft. As of December 15, 1952, the Air Force had 101 C-46 aircraft on lease to 33 different airlines —most of which are non-scheduled, irregular carriers. The majority of these leases will continue in effect until mid-1954 at a monthly rental rate of only $300. After attention was focused on this condition the Air Force increased the monthly rental rate to $1,500 on all leases executed since October 1951. To demonstrate the low measure of even this increased rental charge, the commercial rate for the lease of this type of plane from one airline to another is reported to range from $5,000 to $8,000 per month. . . .

"So far as we can determine no maintenance standards have been specified by the Air Force and certainly the absence of such standards would afford opportunity for further savings and further competitive advantages over regulated carriers. In view of these conditions and the fact that many of the irregular air carriers are delinquent in remitting federal transportation taxes (which they collect as an agent for the government) we are inclined to question the propriety of Air Force policy in diverting traffic from railroads to these highly irregular operations.

"Many non-scheduled, irregular air carriers have virtually no investment in property, conduct their operations primarily with equipment leased from the United States Air Force, pay no property taxes nor maintenance of way expenses (or taxes in lieu of such maintenance of way) and are required to pay only very nominal airport charges . . .

"To further aggravate the situation, there have been verified instances of sales of aviation fuel to these air carriers by the military at prices more than 30 per cent below commercial rates. There is little doubt that under such favorable conditions these carriers can profitably transport group military movements at lower direct charges than can the railroads, or, for that matter, the scheduled airlines. Much of this economy, however, is purely fictional. When the hidden subsidy of unreasonably low lease charges is considered, no saving to government is effected."—*From report of N.A.R.U.C.'s Special Committee on Cooperation with I.C.C. in Study of the Railroad Passenger Deficit Problem.*

"a full and complete public investigation shall have been made encompassing consideration of all the aforementioned objectionable features."

Still a Problem—In its basic report, the Special Committee on the Passenger Deficit, headed by Walter R. McDonald, of Georgia, reviewed the eight recommendations which it had presented to, and which had been adopted by, the N.A.R.U.C.'s 64th convention at Little Rock, Ark., last November (*Railway Age*, November 17, 1952, page 67).

Describing as "only token progress" the fact that the railroads' 1952 passenger deficit was 5.7 per cent below the 1951 "record," the committee found evidence both of "rapid strides" in some areas "toward the solution of this desperately serious problem," and of "serious disappointments." Its report said, in part:

"The improvement in Railway Express Agency earnings, together with the assurance of continued express service, may well be the most promising development. Considerable satisfaction may also be derived from the efforts of the carriers to improve service to the public and eliminate numerous minor but cumulatively annoying inconveniences which have tended to make railroad passenger service unattractive. Much remains to be done in this connection, but it is significant that the carriers are recognizing these deficiencies and are striving to correct them.

"Offsetting these good omens are two serious disappointments. Railway labor has so far failed to contribute its almost indispensable cooperation toward a goal it should share with other interests.

"Another disappointing development has been the extremely slow progress made in eliminating the obviously hopeless deficit passenger trains. . . . Delay in eliminating these deficit trains has been a seriously retarding factor in all other efforts to reduce passenger deficits."

All Interests Criticized—In enlarging on these "disappointments," the committee voiced severe criticism of railway labor organizations, of the railroads, and of state commissions themselves. The brotherhoods, whose "wholehearted cooperation could contribute so materially to a solution of the problem," have participated, the report said, "only to a very limited extent. Generally speaking, the labor representatives have not offered their own suggestions, nor have they advanced criticisms of the suggestions of others."

The railroads, the committee found, "do not appear to have been sufficiently aggressive" in applying for removal of deficit trains, and have "contributed to delay and adverse decisions" by "failure to furnish adequate, timely information on a basis acceptable to the commissions." The latter bodies, the committee declared, have "in many instances been extremely slow" in handling "train-off" applications.

In an effort to remedy these two latter conditions, the committee proposed, and included in its report, a "standard application form designed to insure that the commissions will be supplied with comprehensive information sufficiently complete to permit prompt handling of passenger train discontinuance cases."

Military Also Hit—The nation's military services likewise came in for committee criticism, both for their failure to appoint a military representative to "advise and assist the committee with respect to this all-important segment of passenger traffic"; and for their increasing reliance on the "fictional" economy of non-scheduled air carriers in transportation of military personnel. The committee's comments on such transportation are included in an accompanying box.

Committee Continued—On the

ground that "much remains to be done," the committee recommended, and the association ordered, that it be continued in existence "for the next few years." "We can foresee," the committee said, in this connection, "the probable need of further changes in the uniform application; we are hopeful that we can bring labor and management together on a ground of common interest to discuss objectively some much-needed reforms, particularly in connection with operation of lightweight local trains; and we should continue our efforts toward elimination of inequitable subsidies, and toward encouraging the carriers to modernize passenger facilities."

Long-and-Short-Haul Clause — Discussion of this subject took the form of presentations by Elmer W. Cart, president of the North Dakota Public Service Commission, and by Sam H. Flint, formerly director of the transportation division of the Georgia Public Service Commission, and now general traffic manager of the Quaker Oats Company.

Mr. Cart argued that the clause should not only be retained in its application to railroads and water carriers, but should be extended to cover motor carriers and freight forwarders. Mr. Flint took the position that the clause should be repealed—and in so doing advanced the proposition that its continuation, in its present form, was "regulation for regulation's sake." "If we persist," he asserted, "in exercise of authority no longer required for the public's protection in burdening business with unnecessary red tape, we are jeopardizing the very existence of virile effective utility regulation in this country."

The association's resolution on work stoppages in regulated public utilities called for appointment of a special committee to study the problem of strikes in such utilities, and to confer with labor and management representatives with a view to eliminating or mitigating the effects of such strikes.

New Officers—C. L. Doherty, of the South Dakota Public Utilities Commission, was advanced from first vice-president to president of the association, to succeed Retiring President E. S. Loughlin, chairman of the Connecticut Public Utilities Commission. W. F. Whitney, of the Wisconsin Public Service Commission, was advanced to first vice-president, and was succeeded as second vice-president by B. F. Feinberg, chairman of the New York Public Service Commission. Austin L. Robert, Jr., formerly acting general solicitor and secretary-treasurer of the N.A.R.U.C., was elected general solicitor and acting secretary-treasurer.

The association's 1954 convention will be held in Chicago.

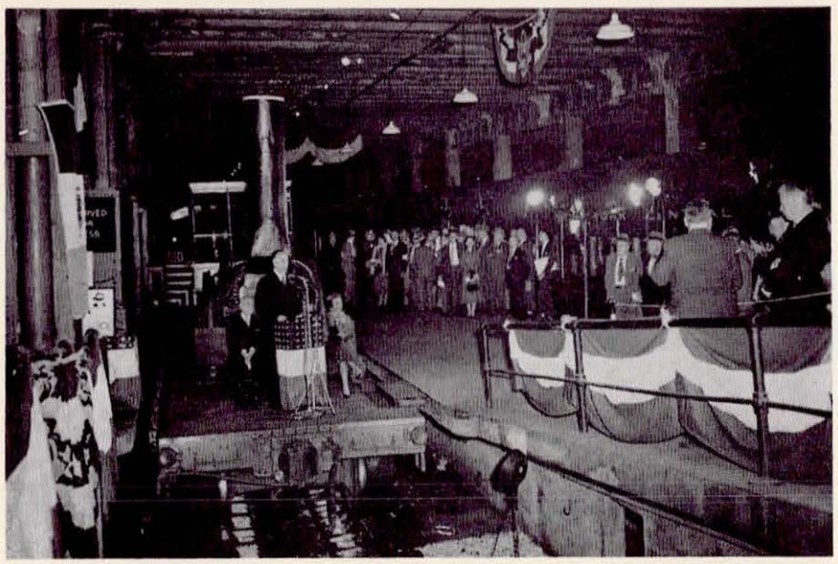
"Nothing Unsolvable About Transport Problem"—Conn

"There is nothing unsolvable about any phase of the transportation problem if leaders of business and industry will work together with the constructive assistance of Congress," Donald D. Conn, executive vice-president of the Transportation Association of America, told a joint luncheon of the Atlantic States Shippers Advisory Board and the Traffic Club of New York in that city, September 24.

But, Mr. Conn warned, "The outlook for the long term is clouded and unpredictable. We must, therefore, take advantage of the next few years to set the stage for a solid economy of transportation and not risk a collapse of private ownership during periods of emergency or protracted economic readjustment. . . . To this end there must be consistent public education as to the importance and requirements of transportation, with the self interest of groups and areas subordinated to the national welfare."

The T.A.A. executive also called for "A minimum of flexible regulation substituted for outmoded rigid controls" so as to provide common carriers with "equality of competitive opportunity to offer, wherever possible, the same or better service at a cost substantially no greater than the shipper can perform such service for his own account." He attacked the federal excise taxes on common carrier transportation of freight and passengers; and asked his audience to assist in the T.A.A.'s economic and educational programs, which he described as "a great adventure in human relations—the goals of which are now in sight."

Service Criticisms—The luncheon at which Mr. Conn spoke marked the conclusion of the Atlantic States Shippers Board's 91st regular meeting. At business sessions preceding the luncheon, railroad carload freight service had been severely criticized, as had their handling of loaded cars. "Rough car handling," said R. C. Avery, of Rochester, N.Y., chairman of the board's Loss and Damage Committee, "is on the increase, and is not showing the expected improvement." Questions had been raised as to whether or not: (1) Carriers are giving suitable consideration, in ordering new cars, to installation of equipment to protect against longitudinal shocks? (2) Have they sufficient power to discipline employees for rough or careless handling of cars?



WILLIAM WHITE, president of the New York Central, speaks at the September 22 formal opening of the road's five-day "Progress in Power" exhibit at Grand Central Terminal, New York (*Railway Age*, September 14, page 10). The exhibit was in honor of New York City, which this year is celebrating its 300th anniversary. At Mr. White's right is Lee Smith, president of the committee for the city's anniversary celebration, who saluted the Central "as a business enterprise which has contributed much of both tangible and intangible values in this city." At right is Gladys Swarthout, star of opera and concert stage, who lighted a token fire beneath the boiler of the replica of the "Dewitt Clinton," historic locomotive that pulled the first passenger train in New York state. The "Clinton" was one of five locomotives exhibited.

More on the Laurel Line

A brief photo story, "The Old Stays. . . The Newer Passes," concerning abandonment of passenger service on the electrified Lackawanna & Wyoming Valley (Laurel Line), appearing in the issue of September 7, page 108, was incorrect in two respects. First, the line extends between Scranton, Pa. and Wilkes-Barre, 19 miles—not Carbondale. Second, last August, while the photographic story about continuance of freight service was being prepared, the road killed its third rail, and began to operate with a 380-hp. General Electric diesel leased from the Lackawanna.

and (3) Placarding of cars as "Fragile" would be more effective than "Do Not Hump"?

L.c.l. service came in for both praise and criticism, one speaker contending that it is showing some improvement; another, that railroads are "trying to dry up and drive away" the volume which is necessary to make l.c.l. service profitable. Plans for observance of "Careful Car Handling" month (October) were outlined; while P. K. Partee, general manager at New York for the Baltimore & Ohio, and chairman of the Railroad Contact Committee, said the railroads would accept, subject to ability to comply, with a resolution requesting that shippers be notified within 24 hours of all cars which have been shopped and which will thereby be delayed 72 hours or more.

Operations

Schedule Changes

Among changes in the Pennsylvania's schedules effective with the September 27 return to standard time were the following: The "Juniata," which formerly left Pittsburgh for Newark, N.J., and New York at 8:15 a.m., now leaves at 11 a.m., connecting with the "Morning Steeler," leaving Cleveland at 8 a.m., to provide fast daylight service from the Ohio city eastward. The "Duquesne," westbound to Pittsburgh, leaves New York at 10 a.m., Newark at 10:15 a.m., and Trenton at 11:08 a.m., one hour 45 minutes earlier, and operates via Pennsylvania Station-30th Street, Philadelphia.

The "Spirit of St. Louis" now leaves St. Louis for New York at 1 p.m. c.s.t., 15 minutes later than before, and the westbound "St. Louisan" has been continued on its summer running time, arriving in St. Louis at 7:30 a.m., or 50 minutes earlier than last year's schedule. These adjustments improve connections with trains serving Kansas City and beyond, and the southwest. The "Pittsburgher," overnight streamliner between Pittsburgh and New York, was restored as an all-Pullman service. Coach passengers formerly using the train are now accommodated on the "American" (operating between New York and St. Louis), in both directions.

A substantial speed-up of suburban service—especially of trains operated in non-rush hours—was effected by the Chicago & North Western. A total of 31 hours and 44 minutes was trimmed from schedules of 271 trains per week, with some cuts of from 12 to 18 minutes. Dieselization of "base" service plus elimination of mail handling on some local runs accounted for most of the improvement. During the summer about 51 per cent of service on the three C&NW suburban lines radiating from Chicago was handled by new diesel power. The schedule cuts were based on a close study of superior performance of that power during that period.

The "Imperial" — through Rock Island-Southern Pacific train between Chicago and Los Angeles—now operates on a westbound schedule nine hours, 35 minutes faster than before. The eastward schedule has been reduced 4½ hours in overall running time. At the same time, accommodations on this train have been improved by introduction of roomette space and additional bedrooms.

N.E.S.A.B. Asks Liberalized Bunching Rule

Some 270-odd shippers, receivers and railroaders attending the fall meeting of the New England Shippers Advisory Board at Poland Spring, Me., September 23-25, heard the board ask for liberalization of the bunching rule of the demurrage tariff, because of continued bunching of inbound loads, particularly coal, at New England destinations.

A variety of other subjects received attention, with the board taking the following action: (1) To support the so-called Tobey Bill, now pending in Congress, when it comes up for consideration at the forthcoming meeting of the National Association of Shippers Advisory Boards at Omaha; (2) to bring to attention of the national association delays in freight service caused by receiving roads returning loaded cars having so-called "penalty" defects to the delivering line, with the hope that the N.A.S.A.B. will ask the Interstate Commerce Commission to permit such defects to be repaired by the receiving carrier; (3) to authorize appointment of a board representative on the Advisory Council of the Port of Boston Commission; and (4) to have the secretary ask shippers to give carriers as much advance notice as possible of shippers' requirements of heavy-duty flat cars because of the meager supply of that type of equipment.

Unsatisfactory l.c.l. service received considerable attention. Discussion made it clear that service within New England is reasonably good but that weekend delays at transfers and destinations often produce unsatisfactory overall transit time.

E. W. Coughlin, manager, Railroad Relations Section, Car Service Division, Association of American Railroads, reported on national transportation conditions. H. G. Randall, C.S.D. district manager at Boston, covered the local situation in New England. No car

TWO AWARDS have been presented to Southern Pacific President D. J. Russell (center) by the National Defense Transportation Association for his leadership in rapidly reopening the SP's San Joaquin route following the disastrous Tehachapi earthquake in 1952. The awards were presented at a meeting of the San Francisco Bay chapter of the association on August 27. Here with Mr. Russell are, left to right, Arthur H. Gass, national president of N.D.T.A. and chairman of the Car Service Division of the Association of American Railroads; T. Louis Chess, general passenger agent of the SP and regional vice-president of N.D.T.A., who holds the association's citation for "outstanding contribution to defense transportation"; Mr. Russell, who is holding the San Francisco Bay chapter's plaque citing his "outstanding achievement in furtherance of the national defense effort"; Brigadier General R. I. Glasgow, port commander of the San Francisco Port of Embarkation, and honorary president of the chapter; and Colonel F. M. Fogel (ret.), president, San Francisco Bay Chapter.

"LADIES DAY."—To introduce 10 new reclining seat coaches which it has received from the Budd Company, the Chicago & Eastern Illinois has instituted special "Ladies Day" fares which will be in effect every Tuesday until November 24. These are one-day excursion fares of about one-half the regular round-trip fare, and are for travel into Chicago from Danville, Ill., or points beyond. The new cars have been placed on many different trains, including locals; one local train, which has been given two of the new all-stainless steel coaches, has shown a particularly substantial upswing in patronage since the "Ladies Day" fares went into effect.

shortages exist there and none are expected, Mr. Randall stated, although there may be some tightness in refrigerator cars later if the presently inactive potato market revives. There is an unusually fine crop this year, a considerable part of which must be moved before extreme cold weather if it is to be moved at all.

Commission Impartial—The evening meeting, on the 24th, was addressed by I.C. Commissioner Anthony F. Arpaia.

He reviewed some phases of the work of the commission and chided shippers and receivers who appear before it as sympathetic to carrier requests for general rate changes, but who plead for no change in their own particular rates. He also called attention to public pleas for maintenance of service, particularly passenger, when such service is not self-sustaining and is, therefore, a drain on revenues obtained elsewhere. He assured his audience that, despite claims to the contrary, the commission is sincerely attempting to treat each transportation group fairly, and leans neither to right nor left in favoring rails or trucks, common carrier trucks or contract trucks, etc.

Car Service Order

I.C.C. Service Order No. 896, effective from September 17 until March 16, 1954, authorizes substitution of two Southern Pacific stock cars for each box car ordered for the transportation of fruit and vegetable containers, box shooks or other packaging or packing materials and uncompressed cotton, from points in Washington, Oregon and California to destinations in those states, and in Nevada and Arizona.

Demurrage Order Out; Operating Rules Stay

I.C.C. Service Order No. 865, which imposed "super" demurrage charges, was allowed to expire September 30, but the expiration of Order No. 866, which prescribes operating rules for movement of freight cars, has been set back to December 31.

At the time of its expiration, the demurrage order applied only to flat cars, some covered hoppers, and bulk-loading container cars. As to Order No. 866, a commission notice about the extension said Division 3 "feels that the terms of the order are not harsh and require the railroads to do nothing more than what might be considered as 'good railroading.'"

The order requires the placement and removal of loaded and empty cars within 24 hours after arrival or release. Operating men have pointed out that better railroading might result in some instances if the rigid requirements of this order did not have to be met. Also, they have criticized the order as a commission encroachment on managerial functions.

Other commission actions in the service-order field have set back expiration dates of three additional orders from September 30 to December 31. The orders are: No. 869, which imposes restrictions on use of refrigerator cars for commodities other than perishables; No. 873, which makes Richard H. Lambertson a commission agent with authority to control movements of tank cars; and No. 887, which permits substitution of up to three SFRD, PFE, or WP refrigerator cars (not suitable for transporting perishables) in lieu of each box car ordered for shipments within the area embraced by the states of Oregon, California, Arizona and Nevada.

Competitive Transport

Eisenhower Asks Murray To Review Aviation Policy

President Eisenhower has asked Robert B. Murray, Jr., chairman of the Air Coordinating Committee, to "undertake a comprehensive review of our aviation policy." The request was embodied in a September 23 letter from the President to Mr. Murray, who is also under secretary of commerce for transportation.

"The increasing importance of aviation as an instrument of national policy and to our national welfare," the President wrote, "makes it desirable that there be available to the government agencies, the aviation industry, and the public, a clear and comprehensive statement of the aviation policies of this Administration.

"In a field so dynamic as aviation, our policies and programs must be flexible and capable of growth. It has been over five years since a broad review of U.S. aviation policy was completed; many events of major significance have occurred in the interim."

The President wants to get from Mr. Murray, "for my consideration and approval," a statement of "present United States policies in the primary areas of aviation interest." He also said that the review "should be done in consultation with appropriate industry, local government and private aviation groups."

Court Move Fails to Halt Parcel Post Rate Boost

A move to stay the October 1 increases in parcel post zone rates was defeated last week when the district court in Washington, D.C., refused to grant a restraining order halting the increases (*Railway Age*, June 22, page 11). A group of greeting card companies sought to forestall the higher rates. They went to the district court and

asked for a temporary restraining order. They hoped, after further proceedings, to obtain a permanent injunction.

Last week's ruling by the court permitted the parcel post increases to go into effect as scheduled on October 1. Meanwhile, the request for a preliminary injunction is still pending, and the court has scheduled a hearing on that issue for October 6.

Rates & Fares

Examiner Would Halt Rate War on Import Iron Ore

Examiner C. W. Griffin has recommended that the Interstate Commerce Commission halt a threatened rate war with a finding that railroad rates on iron ore imported through the ports of Philadelphia, New York and Boston should be on the same basis as the rates out of Baltimore.

The iron ore involved is that moving from the ports to the Johnstown, Pittsburgh, and Youngstown steel producing areas. The examiner's recommendations are that the commission find justified tariffs filed by the Pennsylvania, Erie and New York Central to establish the parity; and that it condemn Baltimore & Ohio and Western Maryland tariffs which propose to keep the Baltimore basis 20 cents per ton below that of the other ports, and Pennsylvania tariffs which would still maintain parity by meeting that proposed cut.

The iron ore traffic at stake is substantial, the annual import total having grown from about 2,500,000 long tons in 1941 to more than 10,000,000 tons in 1951. Estimates cited by the examiner indicated that the volume will amount to 20,000,000 tons within a few years.

Under the examiner's proposal, the parity rates for shipments from the four ports would be on the present Baltimore basis, ranging from $2.31 per ton to $2.71. The case is docketed as I.&S. No. 6074.

Hell Gate Toll Probe Broadened by I.C.C.

The Interstate Commerce Commission has brought the fourth-section-relief phase of the matter into its study of the 90-cent bridge arbitrary which is charged for passenger service through New York City over the Hell Gate route.

The relief, granted many years ago, is from the fourth section's aggregate-of-intermediates provisions, and it permits maintenance of the bridge charge. The commission has now reopened this old case (Fourth Section Application No. 11452) "for further consideration and further hearing upon the question of the present necessity and justification" for the relief.

Meanwhile, the commission has not yet decided the Hell Gate case which has been under way since December, 1951, i.e., the investigation (No. 30953) of the lawfulness of the charge. Respondents in that case are the Pennsylvania, New Haven, and New York Connecting. The latter is owner of the Hell Gate bridge, and the toll charge is the source of its passenger revenue.

The commission's latest determination with respect to the matter was a 1946 decision which dismissed a complaint assailing the charge.

Figures of the Week

Freight Car Loadings

Loadings of revenue freight in the week ended September 26 totaled 819,709 cars, the Association of American Railroads announced on October 1. This was a decrease of 4,175 cars, or 0.5 per cent, compared with the previous week; a decrease of 42,356 cars, or 4.9 per cent, compared with the corresponding week last year; and a decrease of 44,866 cars, or 5.2 per cent, compared with the equivalent 1951 week.

Loadings of revenue freight for the week ended September 19 totaled 823,884 cars; the summary for that week, compiled by the Car Service Division, A.A.R., follows:

REVENUE FREIGHT CAR LOADINGS

For the week ended Saturday, September 19

District	1953	1952	1951
Eastern	138,887	143,161	142,264
Allegheny	159,750	172,544	171,483
Pocahontas	59,250	67,876	67,708
Southern	130,067	135,753	131,713
Northwestern	141,602	152,625	151,013
Central Western	130,602	136,443	134,411
Southwestern	63,726	65,194	65,098
Total Western Districts	335,930	354,262	350,522
Total All Roads	823,884	873,596	863,690
Commodities:			
Grain and grain products	51,876	47,621	53,794
Livestock	11,952	12,963	16,112
Coal	138,836	171,365	158,319
Coke	12,528	14,687	16,254
Forest products	46,390	46,113	45,423
Ore	89,899	98,690	86,800
Merchandise l.c.l.	70,279	74,852	75,851
Miscellaneous	402,124	407,305	411,137
September 19	823,884	873,596	863,690
September 12	710,554	881,291	850,812
September 5	799,079	746,882	732,769
August 29	818,461	727,360	829,481
August 22	817,431	834,229	838,587
Cumulative total 38 weeks	28,248,330	27,155,831	29,479,124

In Canada.—Carloadings for the seven-day period ended September 14 totaled 83,805 cars, compared with 68,669 cars for the previous seven-day period, according to the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
September 14, 1953	83,805	32,022
September 14, 1952	87,001	36,575
Cumulative Totals		
September 14, 1953	2,800,302	1,162,394
September 14, 1952	2,883,741	1,218,447

People in the News

Hill Heads A.A.R.'s L.C.L. Research Group

The new l.c.l. research group in the Freight Station Section of the Association of American Railroads began operating October 1 under directorship of G. H. Hill.

Mr. Hill went to the A.A.R. from the Pennsylvania, where he was superintendent of stations and transfers, Western region. His appointment was announced following the September 28 meeting of the A.A.R. board of directors.

The board had previously authorized establishment of the research group, a move which had been suggested by the National Association of Shippers Advisory Boards. Headquarters of the group will be in Chicago.

Associated with Mr. Hill will be two assistant directors—H. M. Warner, who was chief of merchandise service for the Milwaukee, and Charles F. Yardley, who was transportation assistant on the New Haven.

Simpson Succeeds R. B. White on A.A.R. Board

Howard E. Simpson, president of the Baltimore & Ohio, has been elected a member of the board of directors and the executive committee of the Association of American Railroads. He succeeds Roy B. White, chairman of the board of the B&O, who resigned from the A.A.R. board at the time of his retirement as president of the B&O.

Atkinson Sees "Critical Era" Ahead

"At this time my observations indicate that the railroad industry as a whole is on the brink of a very critical and serious era," Arthur K. Atkinson, president of the Wabash, told some 300 of his traffic representatives on September 17.

"As I see it," he continued, "a large dark cloud on the horizon is the mounting evidence that business activity is beginning to drop off from the peaks set earlier this year. With cessation of hostilities in Korea, the readjustment or recession period which was expected for the early part of 1954 was advanced to the last quarter of 1953. I am not talking about a depression, but a leveling off of business activity which is expected to be about 10 per cent below the peaks set earlier this year."

He spoke at a "Family Meeting" of Wabash traffic officers from the U.S. and Canada, at which he also told of additions and betterments planned by the Wabash "for the immediate future." They include extension of centralized traffic control systems along additional single track lines, expansion of Tele-

typewriter facilities to include off-line traffic agencies, and acquisition of additional freight cars.

An Unusual feature of the meeting was its scheduling. It was held just before a meeting of the board of directors and the two groups met at a special dinner and later traveled together to Decatur, Ill., to inspect the road's new $4-million freight yards there. They also were shown a display of newer types of rolling stock and visited new diesel servicing facilities at that point. Following this, the directors held their regular meeting.

The traffic meeting was open to operating, engineering, accounting purchasing and law department officers. Representatives of the subsidiary Ann Arbor and New Jersey, Indiana & Illinois, as well as of the affiliated American Refrigerator Transit Company, also were on hand. Between meetings, the group visited Wabash facilities in the St. Louis area, including the new produce terminal at North Market street.

Organizations

FDDM&S Joins F.R.P.

The Fort Dodge, Des Moines & Southern has joined the Federation for Railway Progress.

This gives F.R.P. four railroad members, the other three being Central of Georgia, Chesapeake & Ohio, and Northwestern Terminal. The federation has some 15,000 other members.

More Time Requested To View Exhibits

At the annual business meeting of the Allied Railway Supply Association, Inc., held in conjunction with the Coordinated Mechanical Associations convention at Chicago, September 14-16, favorable reports were presented both on finances and membership—the latter including 227 companies this year, as compared with 208 companies last year. On motion of R. A. Carr, Dearborn Chemical Company, it was voted to request that a four-day convention be held in conjunction with the exhibits next year, and that two free afternoons be set aside for railway mechanical supervisors to inspect and study the various displays. President C. O. Jenista, Barco Manufacturing Company, presided.

New officers, elected for 1954, are: President, D. F. Hall, Hunt Spiller Manufacturing Corporation, and five vice-presidents—F. Rutherford, Vapor Heating Corporation; J. L. Smith, New York Air Brake Company; Bard Browne and C. R. Busch, Unit Truck Corporation, and G. L. Green, Pullman-Standard Car Manufacturing Company; and secretary-treasurer C. F. Weil, C. & H. Chemical Co. Two new members elected to the executive committees were J. A. MacLean, Jr., MacLean-Fogg Lock Nut Company, and J. F. Corcoran, Union Asbestos & Rubber Co.

WRITING THEIR OWN TICKET, 220 members of the American Association of Railroad Ticket Agents headed for their convention in Los Angeles aboard a special Chicago & North Western-Union Pacific train. Just before departure from Chicago, N. J. Spicuzza, vice-president of the association, handed this jumbo ticket to Conductor Walter Jones, who tried to punch it, as J. R. Brennan (right), passenger traffic manager of the C&NW, lent him a hand.

The **Association of Interstate Commerce Commission Practitioners** tendered a reception and dinner to members of the commission at Washington's Mayflower Hotel on the evening of September 23. Giles Morrow, president of the Freight Forwarders Institute, is president of the association, a position in which he succeeded Howard Freas who recently became a member of the commission. John R. Turney of the Washington law firm of Turney & Turney was chairman of the committee on arrangements for the reception.

The **Eastern Car Foreman's Association** will meet in the Engineering Societies building, New York, October 9, following a buffet supper at 6 p.m., at the Old Timers Grill, 7 East 40th street. W. J. Symons, superintendent car department of the New Haven, will address the meeting on Freight and Passenger Car Maintenance.

Noel J. Spicuzza, city ticket agent of the Southern at New Orleans, was elected president of the **American Association of Railroad Ticket Agents** at its recent annual meeting.

List of Meetings and Conventions begins on page 99.

The fourth annual meeting of the **Eastern Industrial Traffic League** will be held at the Benjamin Franklin Hotel, Philadelphia. The board of directors will meet October 14 and the general membership at 9 a.m. on the following day, with a luncheon at 12:30, to which non-members of the league are invited.

The **Transportation Club** of the **Rochester Chamber of Commerce** will hold its annual fall dinner-dance at the Sheraton Hotel, Rochester, N.Y., at 7 p.m., October 17.

Supply Trade

Pyrene Manufacturing Company has made a non-exclusive arrangement with **Grinnell Company** for sale and installation of Pyrene fire extinguishing systems, which also will continue to be sold through its own district offices and air foam jobbers, as before.

Clifford H. Keen has been appointed divisional sales manager for **Hubbard & Co.,** for the Eastern division, electrical materials department, at Pittsburgh. He was formerly divisional sales manager for the New York area. **Maynard P. West, Jr.,** sales engineer in Pittsburgh territory, has been transferred to metropolitan New York; **John P. Flippen,** sales engineer, has been transferred from Kentucky-Tennessee territory to Pittsburgh, and has been succeeded by **William W. Ege, Jr.**

Ralph J. Frost, sales engineer at Chicago for **Thomas A. Edison, Inc.,** Primary Battery division, has retired.

The Automatic Control and Uni-Flo divisions of **Barber-Colman Company** have opened two new factory branch offices, one at 1537 Central avenue, Indianapolis, in charge of **Don Horock,** and the other at 1245 South 13th street, Omaha, in charge of **Tom Peterson.**

The U.S. Steel Supply division of **U.S. Steel Corporation** has been appointed distributor for **A. O. Smith** welding products in the West Coast area, with warehouse facilities in Los Angeles, San Francisco and Portland, Ore.

General American Transportation Corporation has opened a southern California sales office at 900 Wilshire boulevard, Los Angeles, with **Ben King Duffy** as district sales manager. Mr. Duffy was formerly plate and welding division sales manager at Pittsburgh. A field erection shop is also being constructed at Colton, Cal., to facilitate erection of Wiggins floating roofs and Wiggins conservation structures. **E. D. Rollins,** western sales

(Continued on page 94)

DUST raised by mining operation is confined by the walls of the pit. Typical track conditions may be seen in the foreground.

IN OPEN-PIT MINES . . .

Electric Diesel-Electrics

By H. J. TYLER
Transportation Engineering
Westinghouse Electric Corporation

Operating under extremely unfavorable conditions, five 500-hp. Westinghouse locomotives have been in service since June 1950 in the Chile Exploration Company's open-pit mines at Chuquicamata, Chile.

So that the locomotives might move freely about the property, it was necessary to provide for three sources of power: Trolley, third rail, and diesel-electric.

Service Conditions

The locomotives operate at an altitude of 10,000 ft. over rock-strewn tracks, with the engine running continuously in highly abrasive dust. Because of the altitude, it was necessary to derate the diesel engines from 675 hp. to 500 hp.

Locomotive operating conditions in the mines are poor. Temporary track is laid over rough ground, and it is not uncommon to see a locomotive wheel lifted free of the rail; derailments are frequent.

To minimize damage during derailments, the swivel-type trucks are held captive by slotted brackets on the underframe. This prevents breaking of traction-motor electrical cable and air-brake connections by holding the trucks in line when off the tracks. Also, sweeper bars in front of the trucks a few inches above the rail perform a double function; they sweep the track free of debris, and provide a safe rest for the truck during derailment.

Third-rail mechanisms are mounted on wooden beams so that a collision with an obstruction on the third rail right-of-way will shatter the beam without destroying the third-rail mechanism.

The atmosphere in the open pit mine is laden with corrosive and abrasive substances. Two sets of filters are used to remove the dust completely from the engine air intake. The first dust barrier consists of 24 20-in. by 20-in. heavy-duty Air-Maze filter panels mounted behind louvers on the engine compartment access doors. Cool air is drawn in through the filters and pushed out through the radiator at the rear of the locomotive by an engine-driven axial-flow fan. The second dust barrier consists of three Air-Maze filter panels mounted across the engine air intake. All filters require cleaning at least once a month.

The diesel engine is kept running continuously, not only to have it warmed up and ready for instant use, but also to provide continuous battery charging without the need to provide line-charging and changeover apparatus.

Thermostatically controlled air-vent shutters are used to throttle air through the radiators thus keeping water temperature up during prolonged idling.

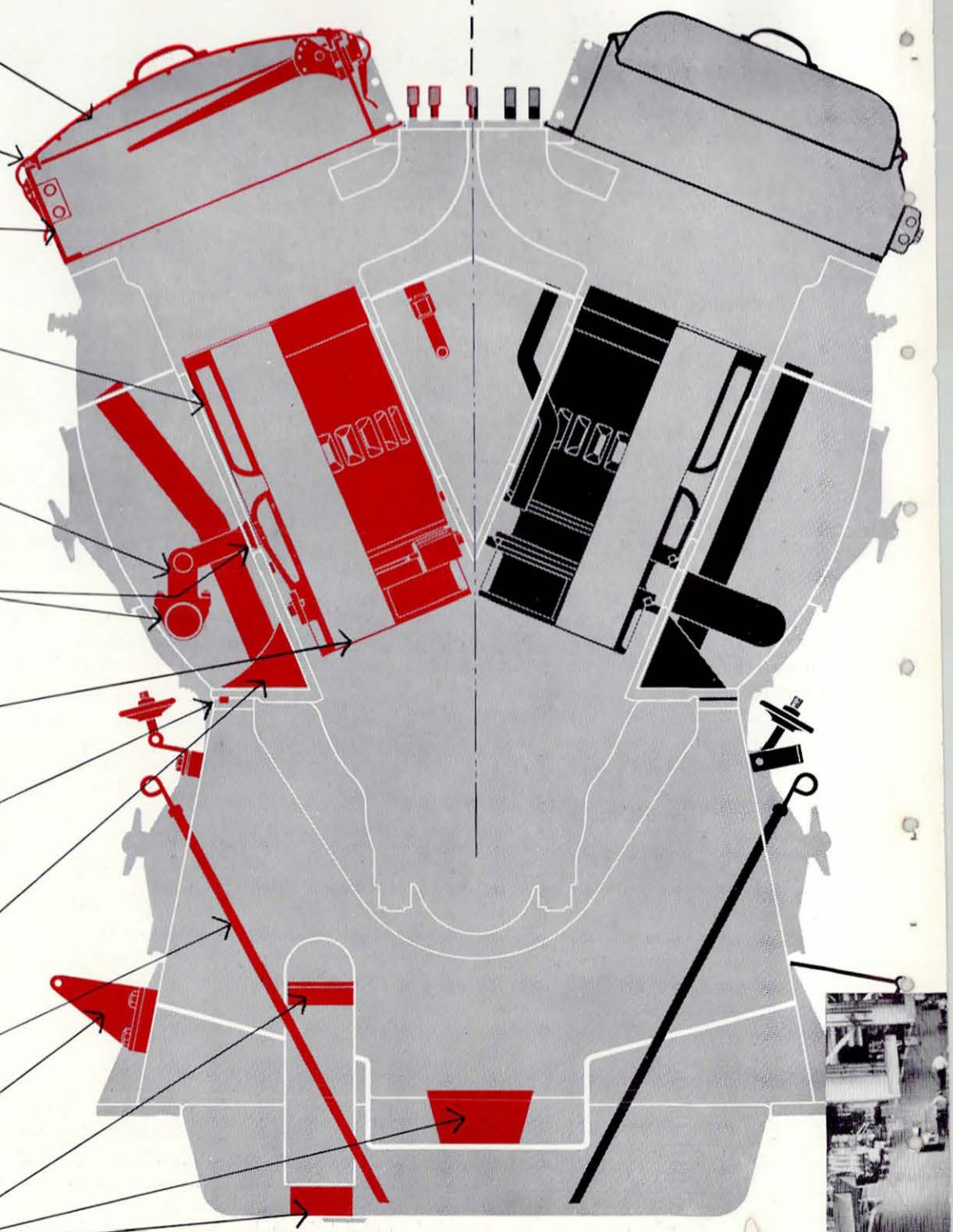
The locomotive power plant consists of a Superior 40-LX-6 diesel engine direct-connected to a Westinghouse type 198-A generator.

The locomotives are equipped with single-station, single-unit control, with the operator's control station on the right side of the cab. At this station are grouped the master controller, the power selector controller, independent and automatic brake valves, instrument panel, foot sander switch, engine starting and stopping push-buttons, bell-ringer valve, air-horn pull cord, window wiper controls, shutter motor-control switch and various light switches.

The source of power is selected by a small three-position controller and a large three-position power-changeover cam switch. The master controller controls the speed and direction of the locomotive on both line and diesel power.

....You get these LATE

MODERNIZED | ORIGINAL DESIGN



1. **Hinged, sealed covers** for easier inspection*

2. **Synthetic rubber seal** designed to prevent oil leaks*

3. **Heavier cover frames** and enclosed fuel lines*

4. **Redesigned cylinder liner** with extended water jacket, closed at bottom

5. **Lower liner seals eliminated** through use of replaceable water inlet manifold with metal jumper line to each cylinder liner

6. **Gasketed saddle mounting** of jumper to manifold. Small "O" ring seal at connection to liner

7. **Replaceable wear ring** between liner and stress plate—eliminates wear on crankcase liner pilot bore

8. **Silicone seal** between crankcase and oil pan replaces flat gasket for more positive oil seal. Metal-to-metal contact

9. **Rail-to-stress plate gussets** cut on 4" radius to relieve stresses

10. **Two oil dip sticks**—one on each side

11. **Bolted-on ramp brackets**

12. **Oil pan support gussets** and scavenging oil line suction box reinforced

Available January

ELECTRO-MOTIVE Unit Exchange

Gives you Better Rebuilds... Faster... at Lower Cost

Electro-Motive operates complete engine rebuilding facili
at La Grange, Illinois; Halethorpe, Maryland; and L
Angeles, California. Similar facilities are also being installe
in our newly enlarged Factory Branch at Jacksonville, Fla.

VELOPMENTS

in Unit Exchange Engines

FROM ELECTRO-MOTIVE

Shown in this cutaway are the latest major developments in the General Motors 567 Diesel engine—now in production on all sizes—*and now available, along with many other improvements, on all 567 engines supplied through Electro-Motive Unit Exchange.*

Years of intensive research, development and testing have resulted in these latest improvements, which will add thousands of miles to life between overhauls, and further reduce the already low cost of maintaining General Motors Diesel units.

As you can see, these are no "half-way" measures. They go right from top to bottom of the engine—from newly designed top-deck covers with improved oil seal—through the heart of the power assembly with new liners and water-cooling manifolds—to "beefed up" supports at the bottom of the oil pan.

Most important *is the elimination of lower liner seals through the use of replaceable water inlet manifolds with jumper water lines individually connected to newly developed cylinder liners. Thus, the lower stress plates of the crankcase are no longer subject to corrosion by water. Seals at the liner-jumper connections are small "O" rings, easy to inspect and easy to replace without disturbing major assemblies.*

The cylinder liner pilot bores are machined, a pilot ring added to the lower bore, and a replaceable wear ring inserted between the liner and stress plate. This takes the wear off the integral part of the crankcase and avoids costly rebuilding. (Savings in welding and furnace stress relieving alone will often pay the cost of all the other improvements.)

In the case of a 10-year-old engine, the list includes a great many improvements and design modifications—all *important to longer life and lower cost maintenance*—all *automatically incorporated in* every *567 engine Electro-Motive rebuilds.*

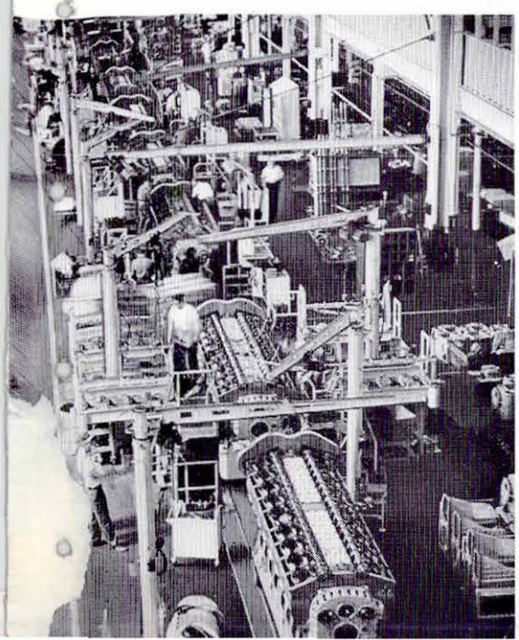
If you have any 567 engines that need rework, you can now obtain completely modernized factory rebuilds—from our Unit Exchange pool. You can have *prompt* delivery—start your engine change-out program without delay.

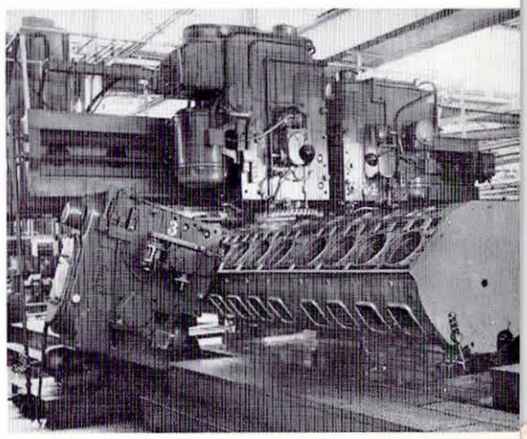
Remember, Electro-Motive backs up all Unit Exchange components—engines, generators and motors alike—*with the same warranty as new!*

Remember, too, our organization has matchless experience, skills and facilities to handle remanufacture and modernization of your engines by production-line methods that will save your railroad money. A new flat-rate price schedule on 567 engine rebuilds spells out costs in detail. Ask your Electro-Motive representative for complete information.

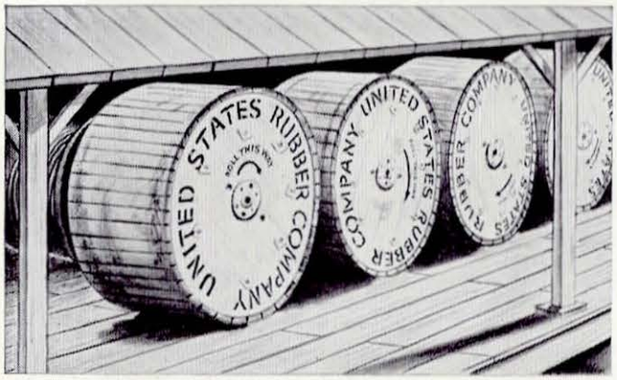
ELECTRO-MOTIVE DIVISION GENERAL MOTORS LOCOMOTIVES GENERAL MOTORS

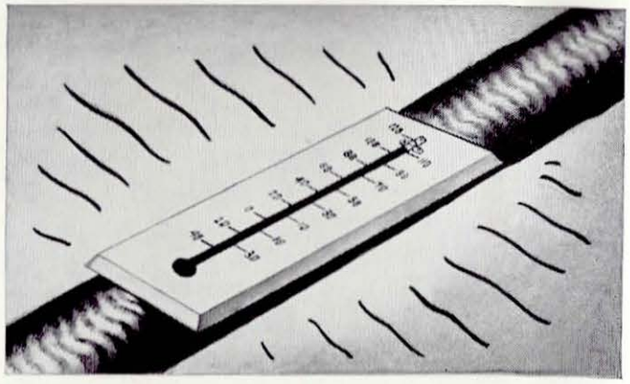
La Grange, Illinois • Home of the Diesel Locomotive





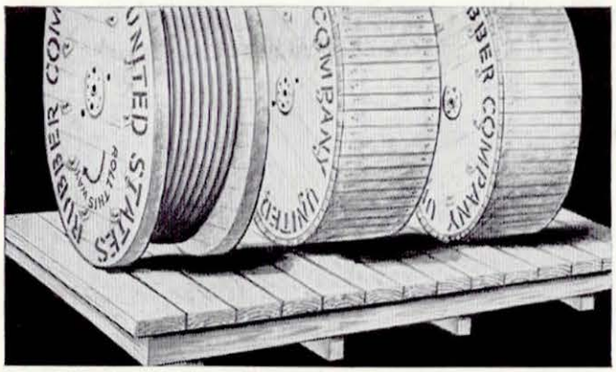
How to prolong the life of wire and cable by proper storage

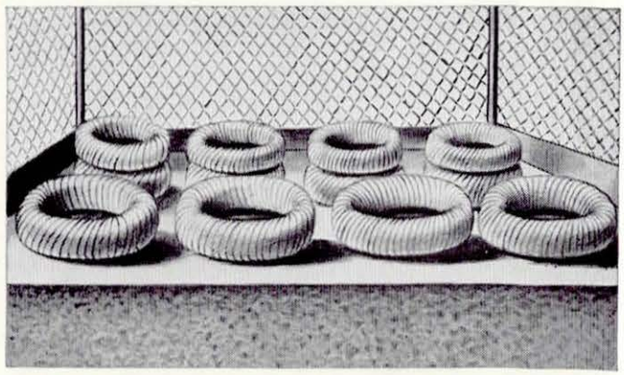




1 **Protect cables from the weather.** Moisture is especially injurious to fibrous coverings. When stored out-of-doors, if they become wet and then freeze, they will be weakened and the saturant will flake off. In humid weather, mold growth is accelerated, weakening the covering and making it easier to damage the cable during installation. (Rubber and thermoplastic insulated and jacketed cables may be stored under moderately humid conditions.) The larger sizes of fibrous covered and rubber jacketed cables and all lead-sheathed rubber insulated cables must be stored on reels which must be properly lagged—or the cable must be otherwise suitably protected against mechanical damage. Reels can be stored out-of-doors if the cable is protected against sun and weather, and the ends are properly sealed.

2 **Don't expose wires and cables to extremes of temperature.** Chemical reactions occur at a higher rate at high temperatures than low. The greatest deterioration of low-voltage cables is due to chemical changes, oxidation or internal changes in the compound itself. Never store reels in the boiler room unless you use a fan to blow hot air away from the wires and cables. It's best to store cables at room temperatures indoors out of direct sunlight. Rubber insulated cables may be stored and handled without damage at the lowest temperatures ordinarily encountered, but thermoplastic synthetic insulated cables should not be handled at temperatures below –10 C. (14 F.)





3 **Reels should be kept off the ground,** so that moisture will not harm the cables, reel flanges and lagging. Sound reels are easier to handle and there is less chance of injury to the cable as it is removed from the reel.

4 **Coils should be stored one layer deep on the floor or shelves,** with the axis either horizontal or vertical. To save space, they may be stacked, but not more than 5 coils in height—otherwise there is harmful pressure on the insulation. Don't remove brown paper or box that protects against dust and light until used.

5 **Rubber insulated fibrous covered, rubber jacketed or lead-sheathed cables in storage** should never be bent to a diameter less than I.P.C.E.A. recommended diameters. Never let coils or reels drop more than a few inches. Always roll a reel in the direction indicated by the arrow on the flange. When rolling an unlagged reel, put planks under the flanges to avoid pressure on the cable. Coils, reels and spools should always be rotated when wire and cable is removed to avoid twisting the cable.

FREE REPRINTS OF THIS PAGE ARE AVAILABLE. WRITE TO ADDRESS BELOW.

UNITED STATES RUBBER COMPANY

U.S.RUBBER SERVING THROUGH SCIENCE

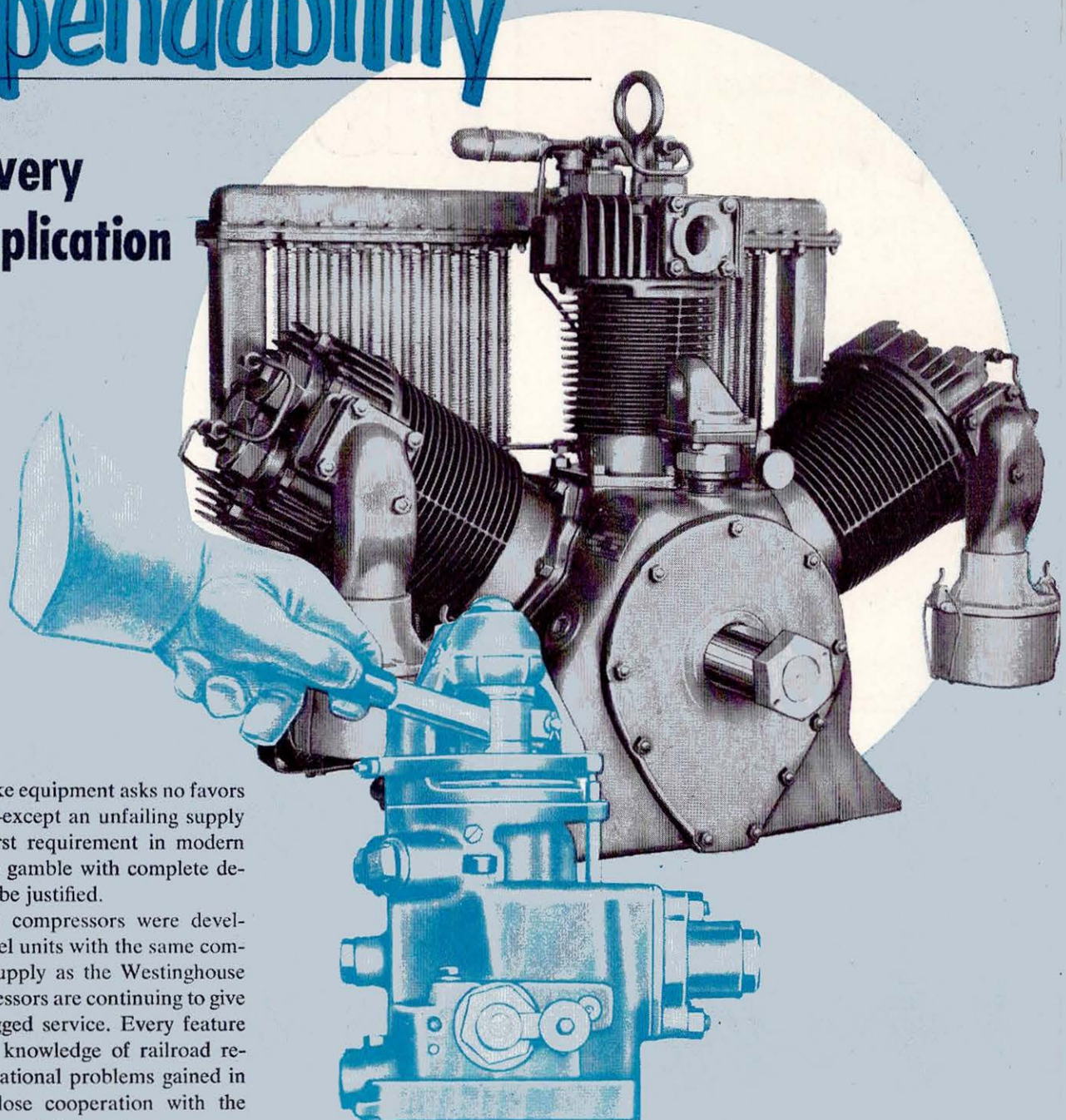
Electrical Wire and Cable Department

ROCKEFELLER CENTER • NEW YORK 20, NEW YORK

WESTINGHOUSE CD COMPRESSORS

put dependability

behind every brake application



Westinghouse Brake equipment asks no favors on any assignment—except an unfailing supply of air. That's the first requirement in modern train control, and no gamble with complete dependability can ever be justified.

Westinghouse CD compressors were developed to provide Diesel units with the same completely reliable air supply as the Westinghouse Steam Driven compressors are continuing to give through years of rugged service. Every feature reflects the intimate knowledge of railroad requirements and operational problems gained in over 80 years of close cooperation with the nation's leading transportation system . . .

1. Radiator-type intercooler between high pressure and low pressure cylinders reduces temperature of discharge air and increases efficiency.
2. Full-pressure type lubrication system maintains even, constant flow of filtered oil to connecting rod crankshaft bearings and wrist-pin bearings.
3. Throw-off of oil from connecting rod bearings lubricates cylinder wall and also main crankshaft ball bearings. Oil pressure relief valve "meters" oil in accordance with compressor speed.

Westinghouse Air Brake
COMPANY
AIR BRAKE DIVISION WILMERDING, PA.

LADING DAMAGE INDEX

Car Outbound
Mounted on short-travel coil springs

Same Car Inbound
Mounted on ASF Ride-Control Packages

VISUAL PROOF

Detailed results of typical test run...Compare the "before and after" riding qualities of the test car!

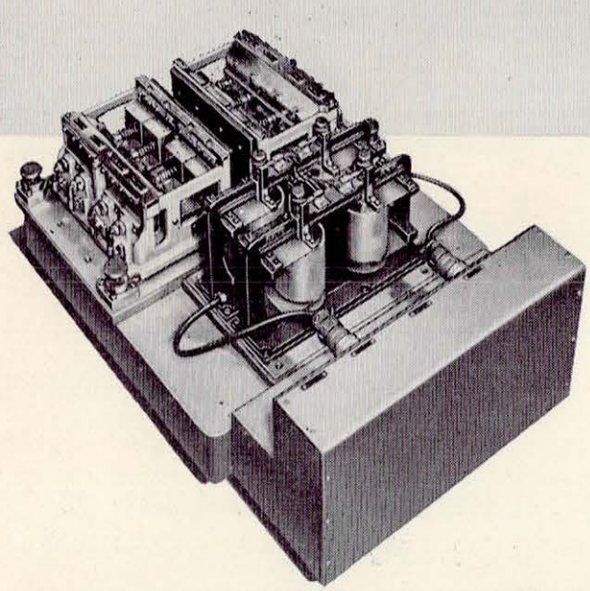
CAR OUTBOUND	Service Factors	SAME CAR INBOUND
27.9 Miles	Distance	27.9 Miles
145,000 Lbs.	Rail Load	145,000 Lbs.
AAR 1936 Coils	Type Springing*	ASF Ride-Control Packages
56 M.P.H.	Maximum Speed	84 M.P.H.

Actual Impact Count—and Lading Damage Index Factor

10,908	.25G	4894 x 1	— 4,894	2,699	.25G	2590 x 1	— 2,590
6,014	.50G	3631 x 4	—14,524	109	.50G	100 x 4	— 400
2,383	.75G	1667 x 9	—15,003	9	.75G	7 x 9	— 63
716	1.00G	716 x 16	—11,456	2	1.00G	2 x 16	— 32
Lading Damage Index			**45,877**	Lading Damage Index			**3,085**

(NOTE: Lading damage index reduced 93.3%. Discount the relatively harmless .25G impacts and the reduction is 98.7%, even though test car travelled 84 M. P. H. on the return trip!)

**Approximate time required for change to Ride-Control Packages: 12 minutes!*

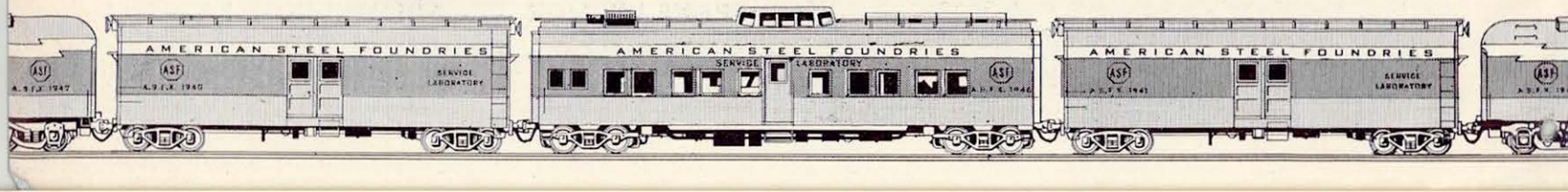


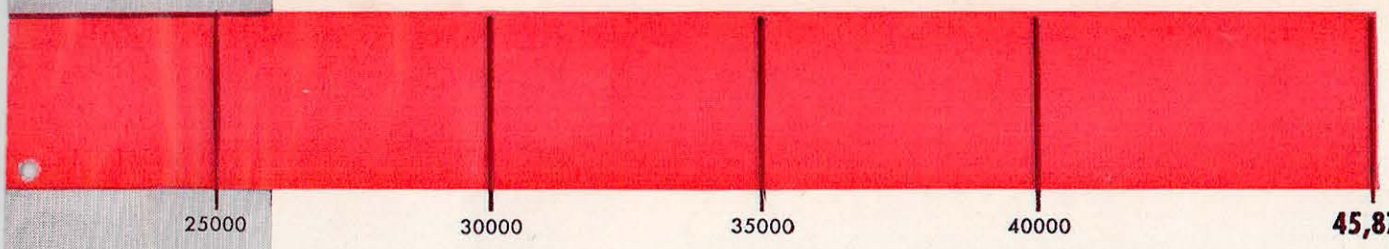
How the tests were conducted

Consist of ASF Test Train at Atlantic City was 2 identical 50-ton box cars, an "operations car" (with observation dome) and 2 passenger cars.

One box car was equipped with ASF Ride-Control Trucks. The other box car was mounted on AAR 1936 coils for the outbound run; for the return trip *on the same track*, it was remounted on ASF Ride-Control Packages.

Sensitive accelerometers (shown at left) were located at each end of each box car. They measured the lateral and vertical shocks, recorded in the operations car.





# of smoother freight hauls!

Take a freight car with short-travel coil springs ...remount it on ASF Ride-Control® Packages ...and the graph above shows how the lading damage index is reduced over 90%.

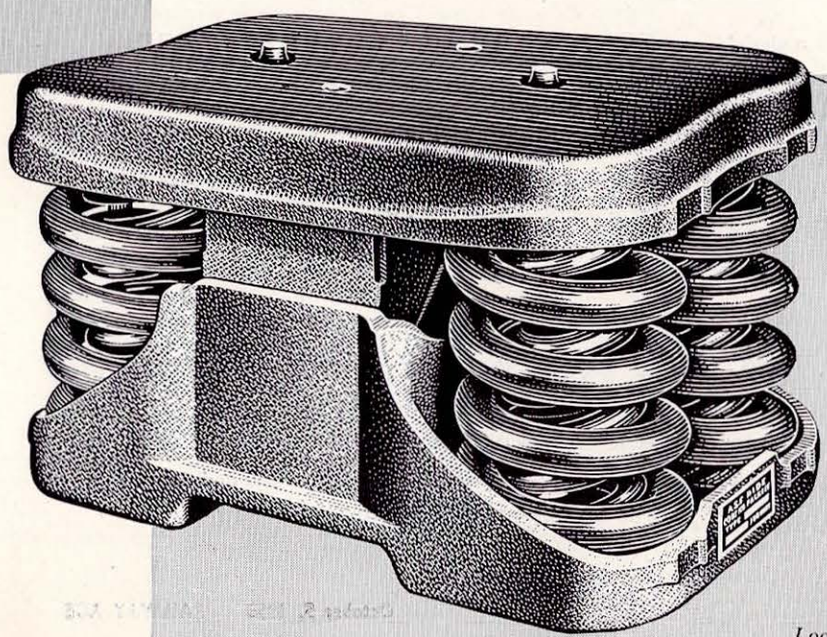
One of the fastest ways to cut lading damage claims is to bring *all* your freight cars up to modern riding standards . . . *credit old short-travel springs against an investment in ASF Ride-Control Packages.* The Atlantic City runs with the ASF Test Train prove how a quick changeover from 1936 coils to the Package practically revolutionizes the riding qualities of an otherwise identical car. Typical test results are shown at left.

And, smoother riding is only the most obvious reason why ASF Ride-Control Packages quickly pay for themselves. Ask yourself how much rough riding costs your road in terms of frequent car repairs, higher maintenance of way, cars suitable for restricted use only. Then consider the economy of a general repairs program that includes giving your older cars riding qualities closely comparable to a brand-new car!

* * *

Call your nearest ASF Representative—for the facts on how an investment in Ride-Control Packages can quickly be written off.

Bring YOUR older cars up to modern riding standards...with



ASF

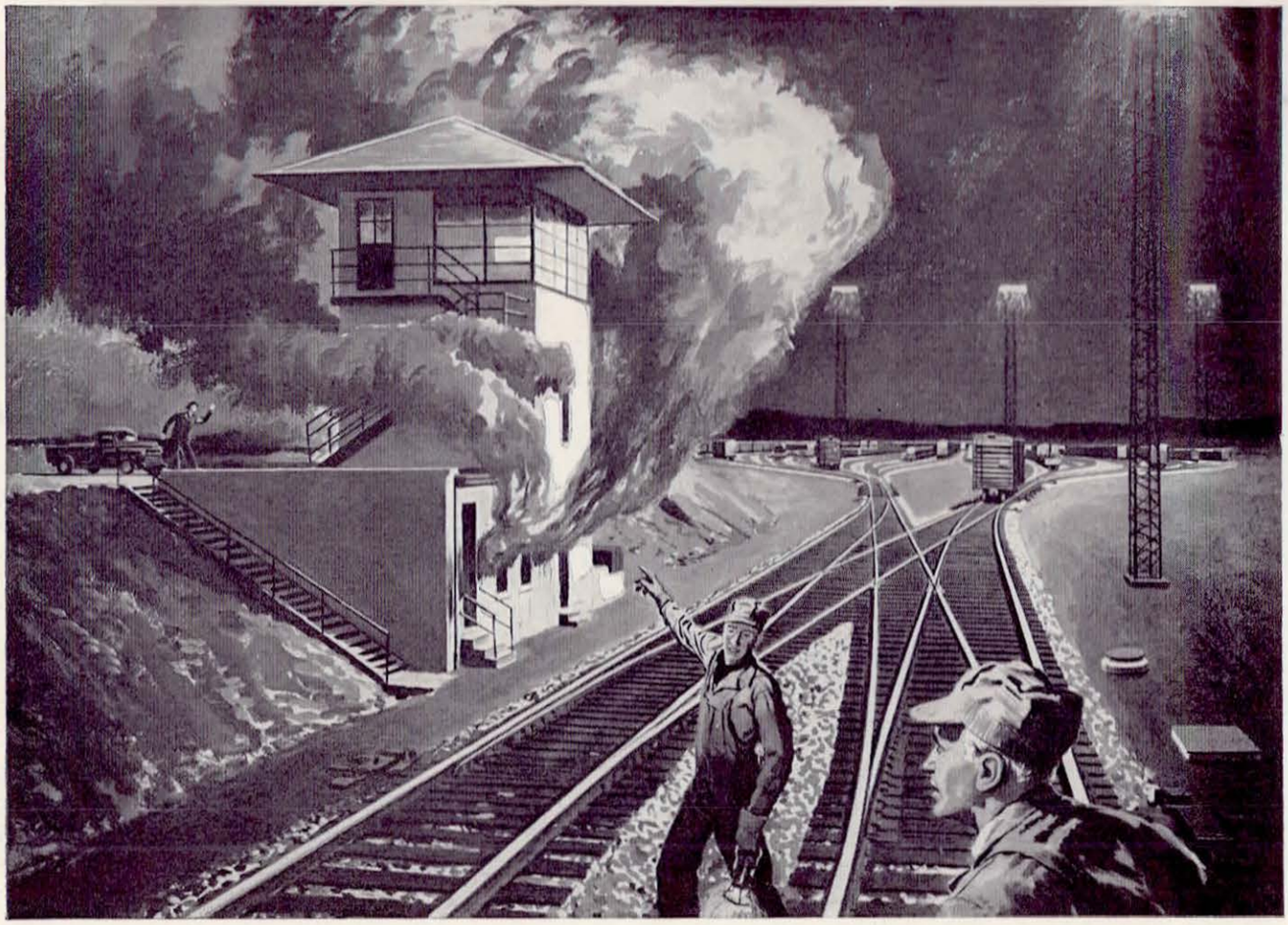
RIDE-CONTROL PACKAGES

AMERICAN STEEL FOUNDRIES

410 N. Michigan Avenue, Chicago 11, Illinois

Look for this MINT ◯ MARK on the running gear you specify

Canadian Sales: International Equipment Co., Ltd., Montreal 1, Quebec



How to tie up a railroad...*fast*

Nobody could say how the fire started, but then, nobody had been in the power room or relay room for several hours. By the time the smell of fire seeped up to the towerman, the damage was done. Traffic was paralyzed all along the division.

Like an unexpected blow to a nerve center, fire in a signal control tower can tie up traffic in the twinkling of an eye. With this in mind, railroads are now installing fast, sure-acting C-O-TWO Railroad Fire Protection Systems to guard against the possibility of fire from short circuits or other electrical faults in the power room, relay room, control machine, cable trenches and vertical wireways of signal control towers.

At locations where a deep-seated, smoldering fire as well as a fast burning fire might occur, the smoke detector of a C-O-TWO Smoke Fire Detecting System automatically detects the first trace of smoke, smoldering or fire. Where flammable liquids might cause a flash fire, the heat detectors of a C-O-TWO Heat Fire Detecting System automatically sound a warning at the first flash of fire.

Then clean, dry, non-conducting, non-damaging carbon dioxide is quickly released from a C-O-TWO High Pressure Carbon Dioxide Type Fire Extinguishing System into the threatened area. The fire is out in seconds with a minimum of interruption to operations and the carbon dioxide disappears without a trace . . . harmless to equipment, wiring and finishes.

WHEN TRAFFIC STOPS . . . INCOME STOPS!

Don't take chances with your traffic control systems. Secure the benefits of highly efficient railroad fire protection engineering today . . . our extensive experience over the years is at your disposal without obligation. Get the facts now!

C-O-TWO

MANUFACTURERS OF APPROVED FIRE PROTECTION EQUIPMENT

Squeez-Grip Carbon Dioxide Type Fire Extinguishers
Dry Chemical Type Fire Extinguishers
Built-In High Pressure and Low Pressure Carbon Dioxide Type Fire Extinguishing Systems
Built-In Smoke and Heat Fire Detecting Systems

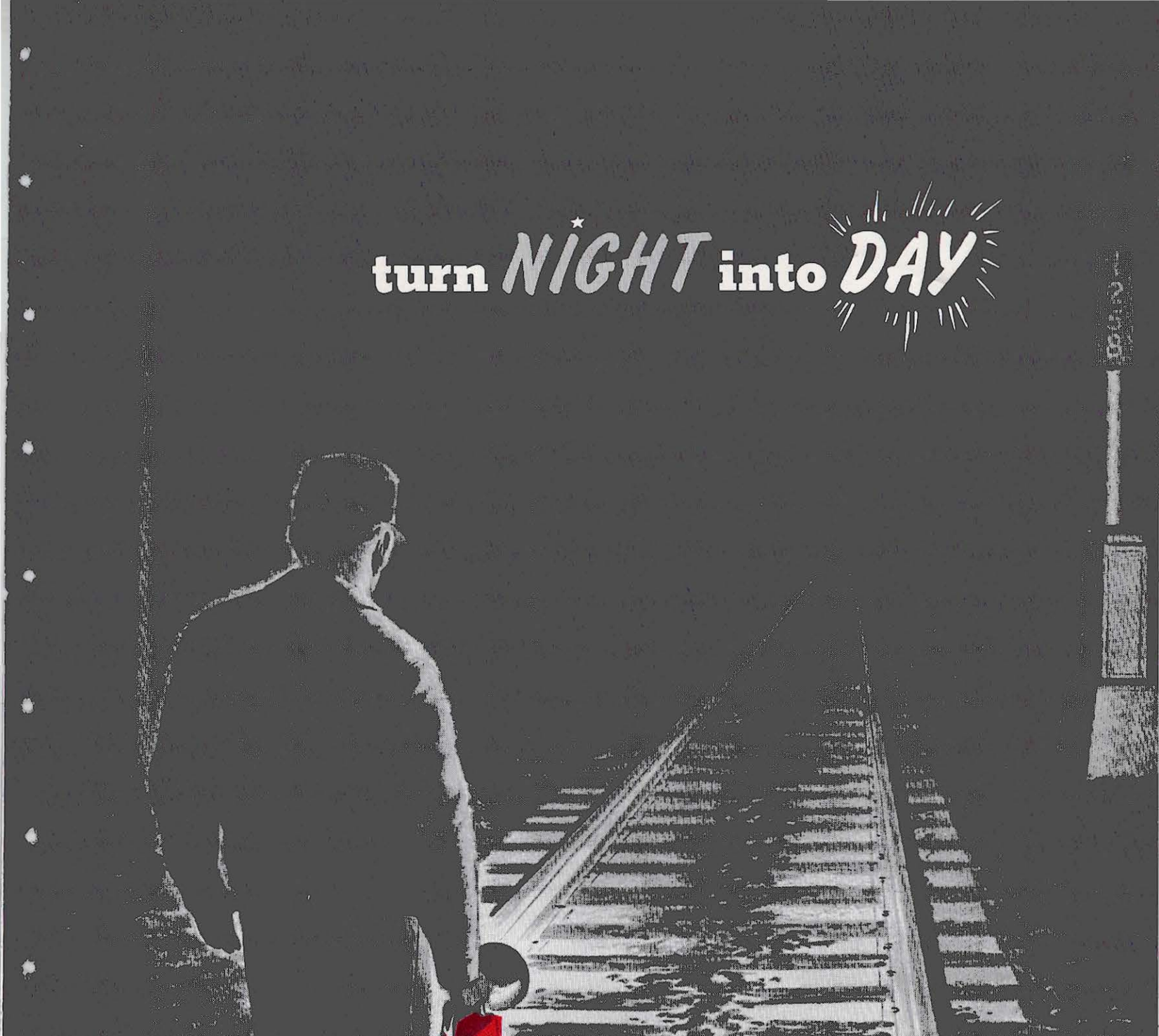
C-O-TWO FIRE EQUIPMENT COMPANY
NEWARK 1 • NEW JERSEY

C-O-TWO FIRE EQUIPMENT OF CANADA, LTD. • TORONTO 8 • ONTARIO

Sales and Service in the Principal Cities of United States and Canada

AFFILIATED WITH PYRENE MANUFACTURING COMPANY

turn NIGHT into DAY



. . . at the flick of a switch

Instant, brilliant light to flood the darkest work location makes every night job safe and efficient. That's the kind of utility that a Fairbanks-Morse hand lamp offers you—at the flick of a switch.

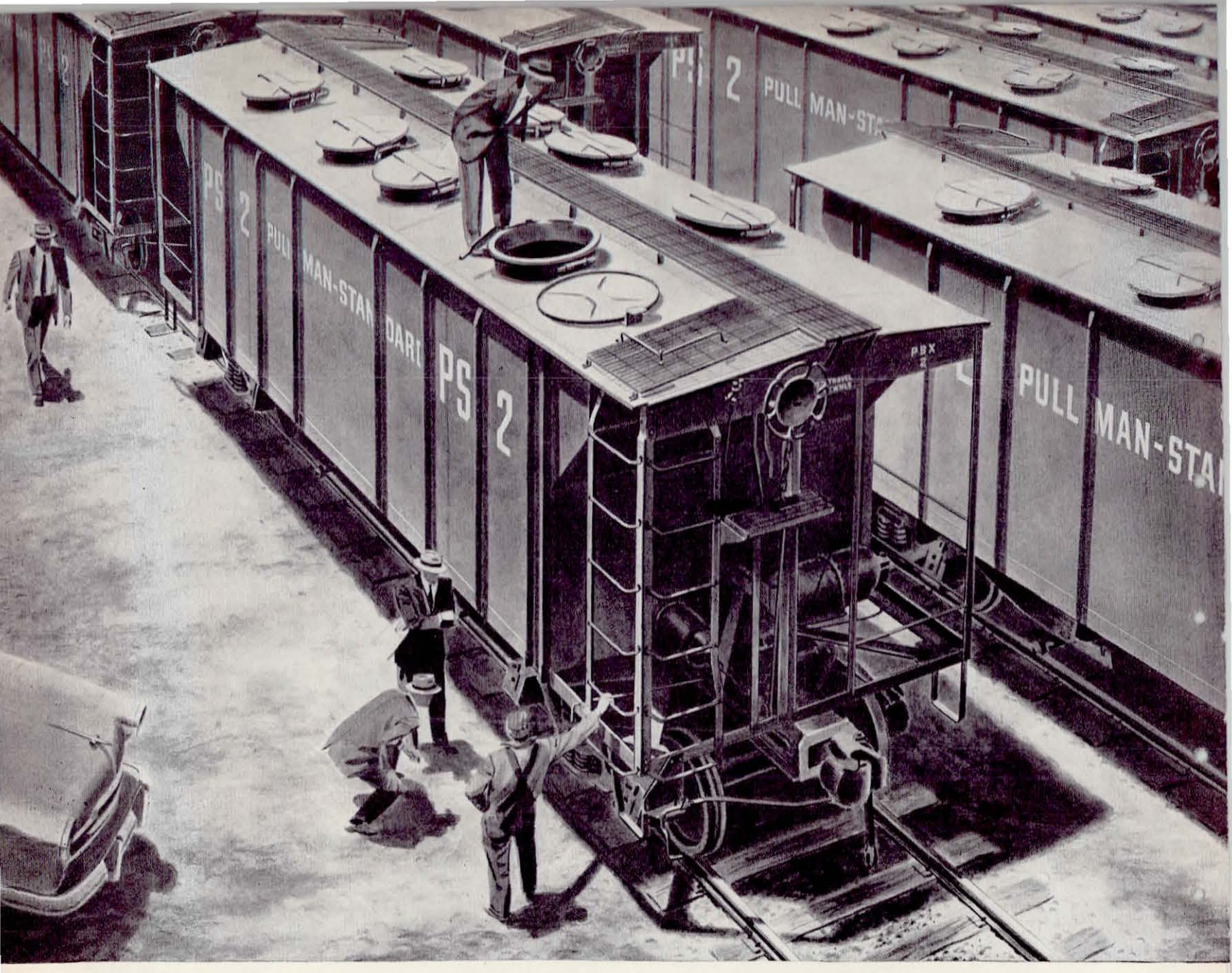
What about quality? F-M lamps have sturdy steel weather-proof cases, baked enamel finish. Triple silver-plated reflector for longer lasting reflection. Extra sure battery-to-lamp connections . . . no wires to fuss with or loosen.

What about price? From single cell to four-cell units, the F-M line of handy portable light units brings you daylight for all night jobs at minimum cost. Write us today for a complete catalog. Fairbanks, Morse & Co., Chicago 5, Illinois.

FAIRBANKS-MORSE

a name worth remembering when you want the best

RAIL CARS AND RAILROAD EQUIPMENT · DIESEL LOCOMOTIVES AND ENGINES · ELECTRICAL MACHINERY · PUMPS · SCALES WATER SERVICE EQUIPMENT · HAMMER MILLS · MAGNETOS



THE PS-2 COVERED HOPPER CAR

The PS-2 Covered Hopper Car represents another Pullman-Standard achievement in freight-car standardization for dependability and economy. The design is new, and production includes extensive use of automatic arc welding.

In addition to the sturdier construction, characteristic of standardized freight cars, some of the PS-2's features include: improved circular hatches; smooth self-cleaning hoppers; and a sturdier, safer roof.

NEW BOOKLETS

Anyone concerned with Covered Hopper Cars, Box Cars or Hopper Cars will be interested in the facts, specifications and details contained in these illustrated booklets. Write for a copy of any one or all three.

LOOK at these standardized cars

Like the PS-1 Box Car and the PS-3 Hopper Car, the PS-2 Covered Hopper Car is the result of tested design and continuous production.

This means that railroads are benefiting from top-quality freight cars produced more economically.

These standardized cars include the advantages of continuous production and the economies of specialized tools and techniques.

Their stamina and continual improvement are influenced by "on-line" checking by Pullman-Standard Sales and Service engineers and laboratory testing by Research and Development engineers.

Features of the new PS-2s are many: new all-around strength; special welded design that means quick, clean unloading with no material retaining ledges, projections or structural pockets; and new center pressure locking hatch covers, on the circular hatches, add weather protection.

PS-2 design allows this car to be adapted to a three or four-hopper car for the transportation of various bulk commodities.

1,405 PS-2 Covered Hopper Cars have been bought by ten railroads—an indication that standardized cars are a sound, revenue-building investment.

YOUR NEEDS CREATE THE PULLMAN "STANDARD"

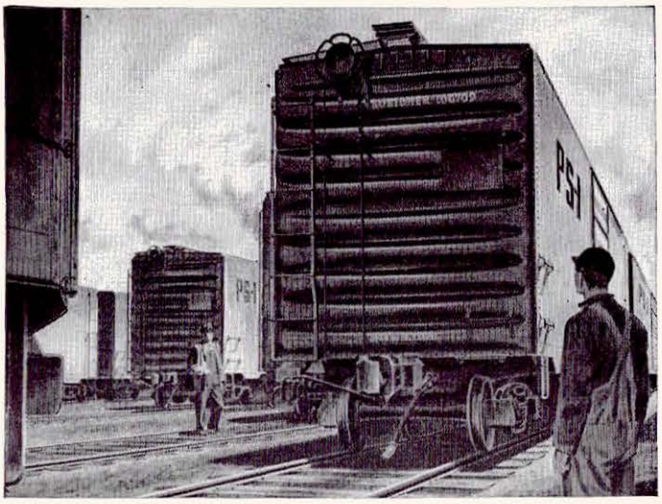
PULLMAN-STANDARD

CAR MANUFACTURING COMPANY

SUBSIDIARY OF PULLMAN INCORPORATED

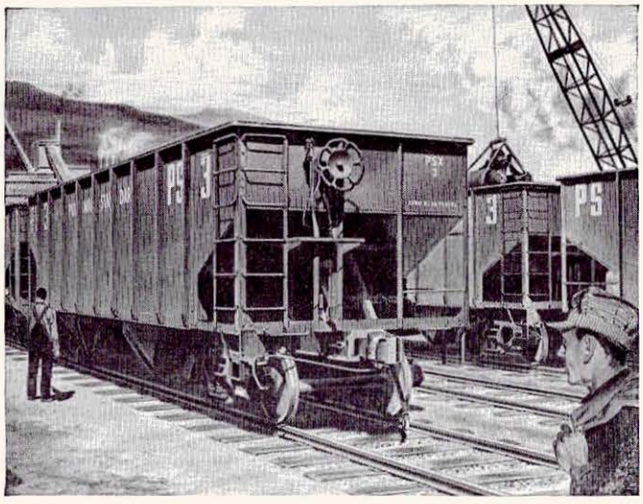
79 EAST ADAMS STREET, CHICAGO 3, ILLINOIS

BIRMINGHAM, PITTSBURGH, NEW YORK, SAN FRANCISCO, WASHINGTON



THE PS-1 BOX CAR

The PS-1 is a good example of the progressing standard which is so important in the successful operation of these cars. Pullman-Standard Research and Development engineers have never stopped testing, proving and improving the standardized PS-1. They continue to anticipate the railroads' needs for better, more economical freight cars. Under laboratory control, Research and Development technicians reproduce service hazards. The cars are subject to conditions more severe than those actually ever encountered.



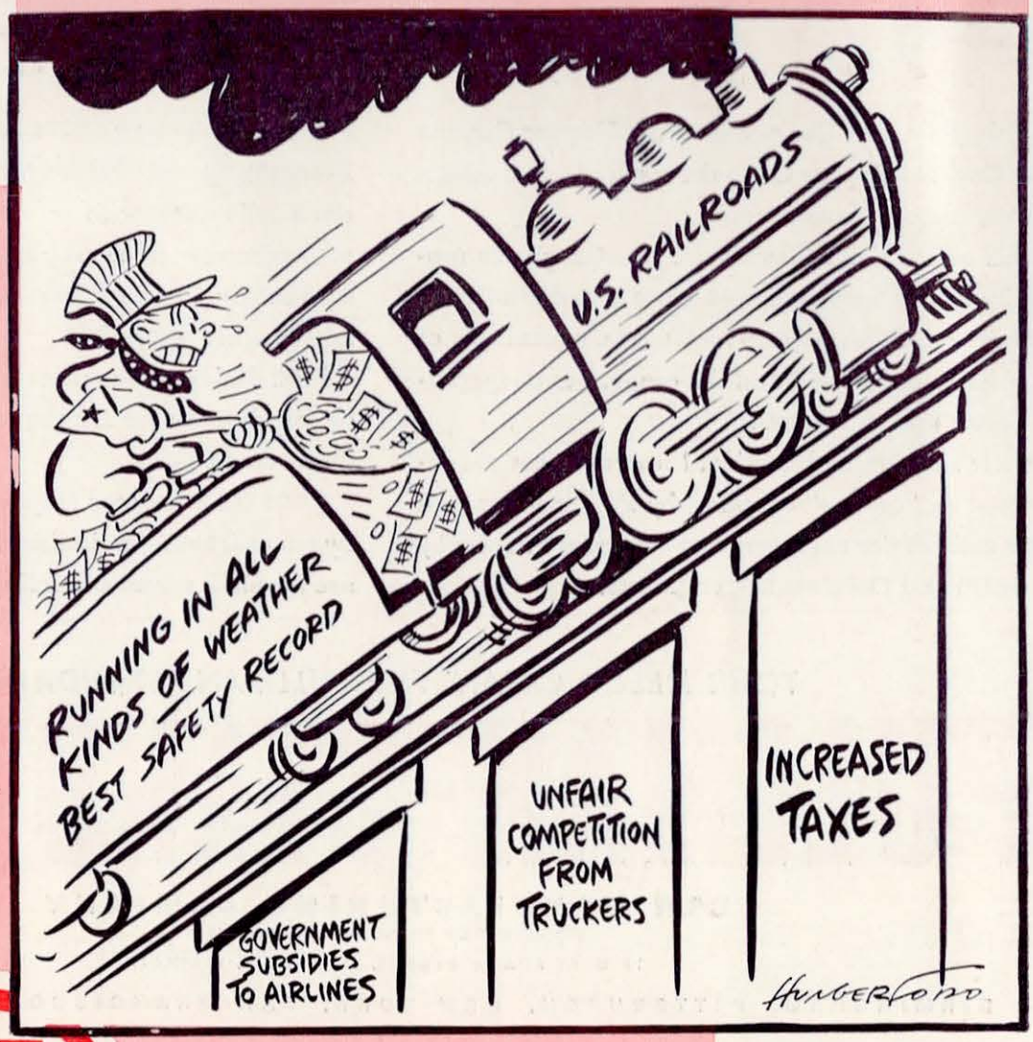
THE PS-3 HOPPER CAR

The specifications of the PS-3 resulted from a thorough inspection of virtually every type of hopper car in service, and from a study of the effect, on the cars, of current handling practices. They incorporate proven advantages, omit potential trouble spots.

Among the objectives set for these cars were three which dictated welded construction: maximum strength at all vital points, maximum corrosion resistance, and smooth interiors for fast loading.

Paying His Own Way and Still Going Strong!

By Hungerford



The idea for this cartoon, drawn by Mr. Hungerford, won a prize for

Mr. CARLETON P. ADAMS

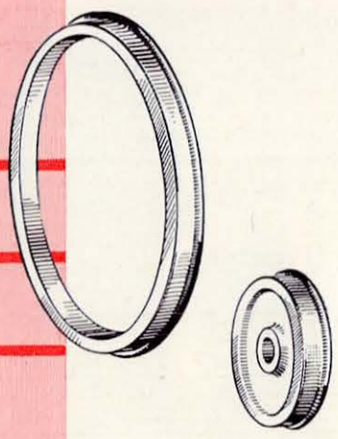
in the Edgewater Cartoon Idea Contest, held during the R.S.M.A. Convention at Atlantic City in June 1953.

We will be glad to send you enlarged copies of this Hungerford cartoon (without advertising copy) for posting on your office and shop bulletin boards, or a cut for your company magazine, at cost.

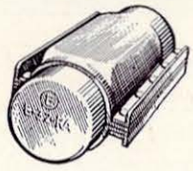
E

PITTSBURGH, PENNA.

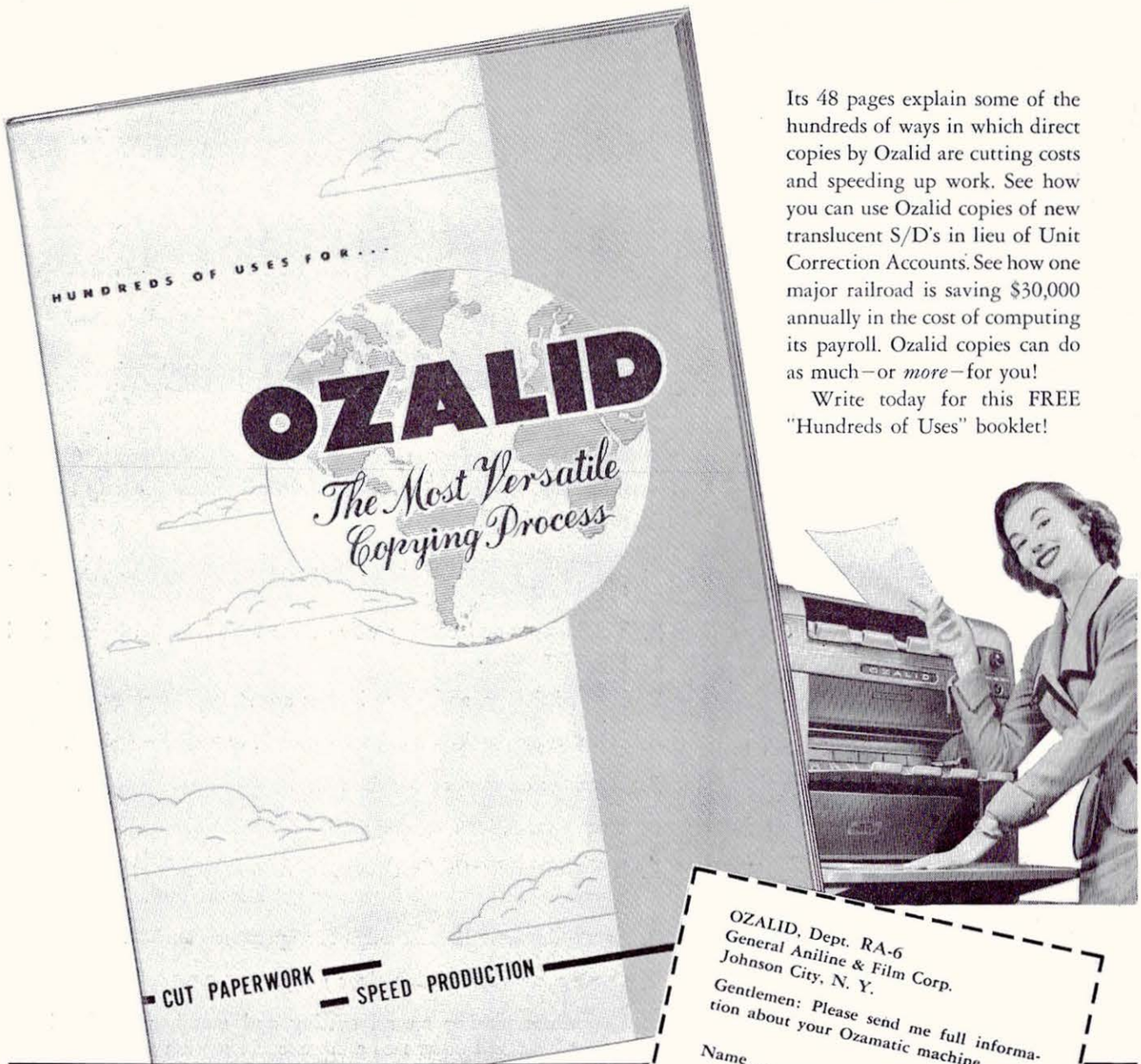
EDGEWATER STEEL COMPANY



SERVING AMERICA'S RAILROADS WITH ROLLED STEEL TIRES, WHEELS and DRAFT GEARS



See how this free booklet can help you!



Its 48 pages explain some of the hundreds of ways in which direct copies by Ozalid are cutting costs and speeding up work. See how you can use Ozalid copies of new translucent S/D's in lieu of Unit Correction Accounts. See how one major railroad is saving $30,000 annually in the cost of computing its payroll. Ozalid copies can do as much—or *more*—for you!

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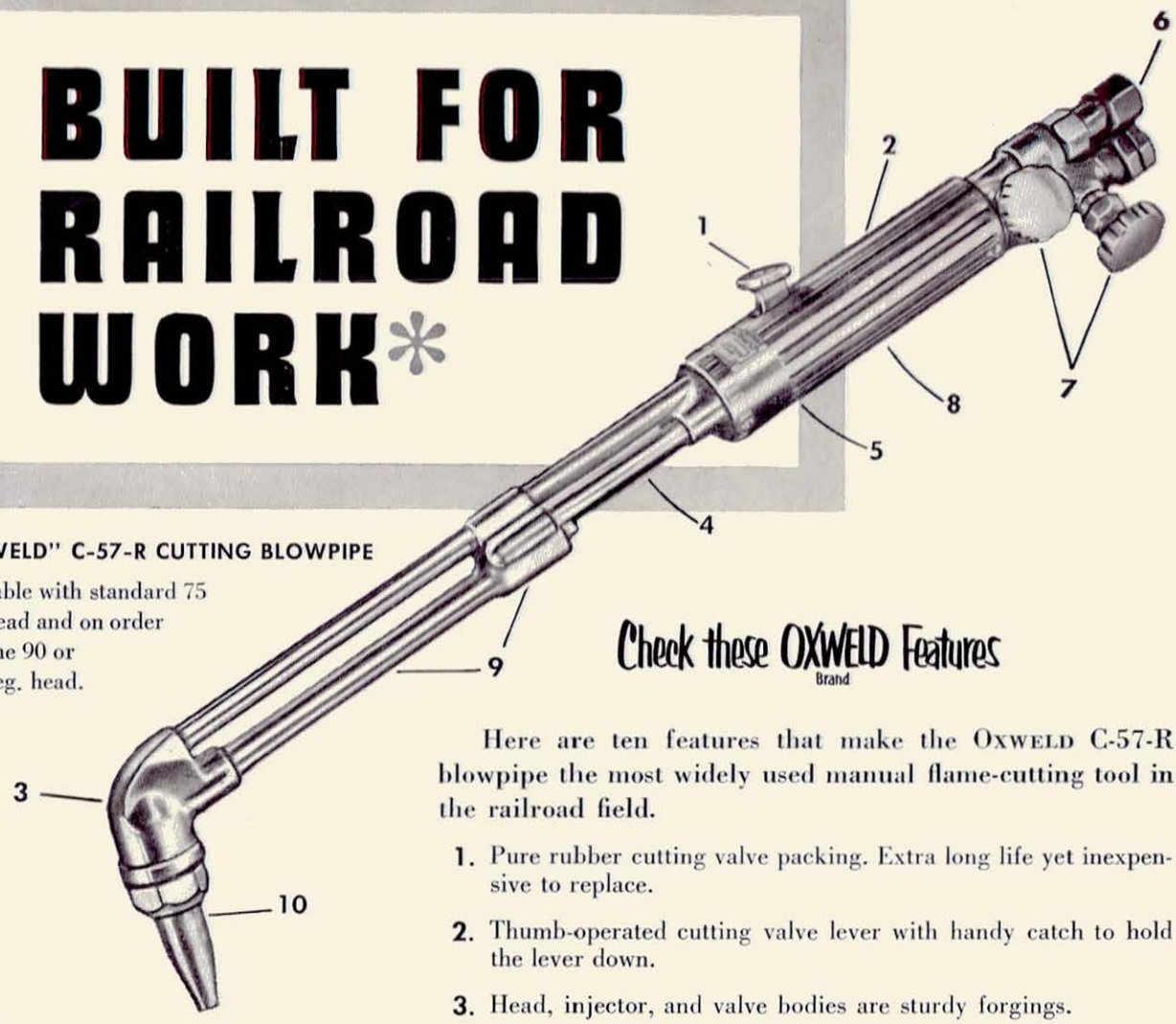
BUILT FOR RAILROAD WORK*



"OXWELD" C-57-R CUTTING BLOWPIPE

Available with standard 75 deg. head and on order with the 90 or 180 deg. head.

Check these OXWELD Brand Features

Here are ten features that make the OXWELD C-57-R blowpipe the most widely used manual flame-cutting tool in the railroad field.

1. Pure rubber cutting valve packing. Extra long life yet inexpensive to replace.
2. Thumb-operated cutting valve lever with handy catch to hold the lever down.
3. Head, injector, and valve bodies are sturdy forgings.
4. Injector set back from cutting nozzle out of direct heat.
5. Operates on low- or medium-pressure acetylene supply.
6. Hose connections are strong, long-lived Monel.
7. Ball-type preheat valves have Monel stems that go through hand wheels — wheels don't loosen or get knocked off.
8. Large-diameter handle helps for operator comfort.
9. Tubing is tough nickel-silver alloy.
10. Chromium plating on all cutting and gouging nozzles helps reflect heat and decreases adherence of molten metal.

* The OXWELD C-57-R blowpipe is built to give many extra years of economical and trouble-free service even under rugged railroad conditions. Use it to cut steel or wrought iron up to 10 inches thick . . . to remove rivets . . . to gouge out defective metals . . . to prepare parts for welding . . . Or, use it to speed alteration or scrapping work. It will handle any cutting job. And it makes smooth, fast cuts.

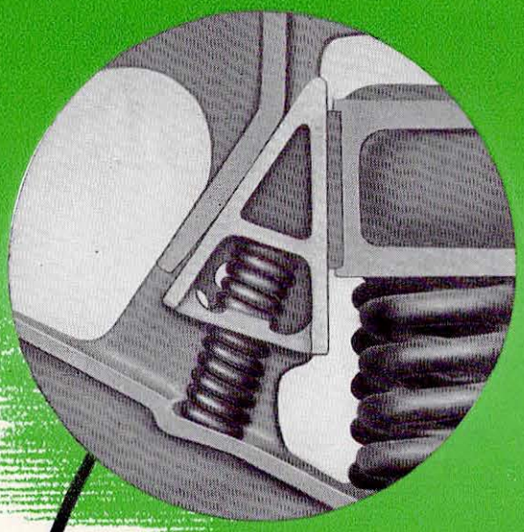
Ask OXWELD or a representative to show you how the C-57-R can speed railroad work.

OXWELD RAILROAD SERVICE COMPANY
A Division of Union Carbide and Carbon Corporation
UCC
Carbide and Carbon Building Chicago and New York
In Canada:
Canadian Railroad Service Company, Limited, Toronto

SINCE 1912—THE COMPLETE OXY-ACETYLENE SERVICE FOR AMERICAN RAILROADS

The term "Oxweld" is a registered trade-mark of Union Carbide and Carbon Corporation.

In the Buckeye C-R® Truck



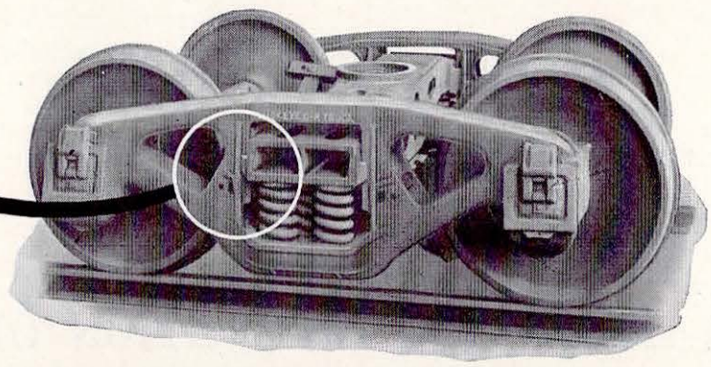
THE FRICTION WEDGES ARE REVERSIBLE — PROPER ASSEMBLY IS ASSURED

The reversible friction wedge, symmetrical about the center line of the wedge spring, eliminates the possibility of improper assembly:

- No delays in building programs or in riptrack work—
- No faulty operation—

} due to improper assembly

This feature is one of the many refinements in design available in the C-R (Cushion-Ride) Truck which contributes to its ease of assembly and maintenance and to its outstanding performance.



B

THE BUCKEYE STEEL CASTINGS COMPANY

New York, N. Y. Columbus, Ohio Chicago, Ill.

Do you know these facts about vanadium?

Vanadium is available in quantities for every application.

Ferrovanadium is one of the most versatile, economical ferro alloys. It gives new life and endurance to virtually every type of alloy steel and iron. Its applications range from watch springs to giant forgings. *And a little goes a long way,* with small additions often doing the work of large additions of other alloys.

Through a long-range program of planned expansion, Vanadium Corporation has played a leading role in keeping vanadium available. Latest results of this program . . .

VCA mines in the U.S. and overseas offer a reliable, growing source of the finest vanadium ore.

New and enlarged facilities at the VCA plant at Cambridge, Ohio, assure a plentiful supply of highest-quality Vancoram Ferrovanadium for every iron and steel application.*

In the years ahead, Vanadium Corporation will continue to keep ahead of the growing demand for vanadium throughout American industry—producing increased quantities of Vancoram Ferrovanadium for both military and civilian use.

**For greater shipping economy and ease of handling, Vancoram Ferrovanadium can be furnished in palletized form.*

Producers of alloys VANCORAM metals and chemicals

VANADIUM CORPORATION OF AMERICA

420 Lexington Avenue, New York 17, N. Y.

DETROIT • CHICAGO • PITTSBURGH • CLEVELAND

What's New in Products

HOT MEALS FOR COACH PASSENGERS—or in buffet cars—are among possible commercial applications of a method being tried out to provide better in-flight feeding for military aircraft crews. The plan involves use of seasoned, but uncooked, food—meats, fish, vegetables, bread and desserts—prepackaged in aluminum foil, and kept refrigerated (but not frozen) prior to use. For serving, the food packs are heated, trayfuls at a time, in an electric oven for 30 minutes. Separate packaging of each meal component is said to eliminate the "sameness of taste" which sometimes results from prepackaging complete meals; while the possibility of preparing packs at a central commissary holds out promise of economy in food costs. Experiments with the new method of food service are under way at the Nutrition Section of the Aero-Medical Laboratory at Wright Air Development Center, Wright-Patterson Air Force Base, near Dayton, Ohio, in cooperation with the Reynolds Metals Company •

Railroad Lantern Batteries

A 6-volt battery for railroad hand lanterns, and an industrial flashlight cell, are being promoted by General Dry Batteries, Inc., Cleveland, as part of a merchandising program tailored to railroads. The new lantern battery, which fits standard trainmen's and inspectors' lanterns, has a combination of safeguards against breakage, moisture and other hazards of railroad operations which can shorten shelf and service life. It is rated for 53 hours of service life, and the flashlight cell has a service life of 815 minutes. Both ratings are based on U. S. Bureau of Standards test procedures which railroad laboratories follow •

Vacuum Cleaner

Production of a new heavy-duty portable vacuum cleaner for maintenance use in industrial plants, commercial buildings, railway cars, and similar applications has been announced by the Premier Company, St. Paul, Minn. The new Model P-909 cleaner is equipped with a universal type a.c.-d.c. 115-volt motor, sealed against water damage and fitted with a separate cooling system for continuous operation. It generates an air flow of 74 cu. ft. per min. and a vacuum water lift of 42 in.

Dry-tank capacity of the unit is 1¾ pecks and its liquid capacity is 5¾ gal. All bearings are of the precision ball-type, permanently sealed in lubricant. The unit is mounted on four rubber-tread casters and it is equipped with a protective rubber bumper which surrounds the cleaner base. A number of standard cleaning tool attachments are furnished with the unit, including an 8-ft. braided rubber hose with adapter, steel floor rod for connecting tools to the hose, floor and rug nozzle, bare floor and wall brush, crevice tool, utility and upholstery nozzle and a slide-on brush. Also available from the manufacturer is a kit of tools for conversion of the machine to wet-pick-up equipment •

Welding Electrode

Designed for build-up work and hard-surfacing applications wherein the deposited metal can be machined or flame hardened, a new welding electrode recently announced by the General Electric Company's welding department is a heavy-covered, flame-hardening rod that can be used in all positions. Designated G-E Type W-98, the electrode produces an arc of the steady-spray type, similar to that produced by the E-6013 electrode.

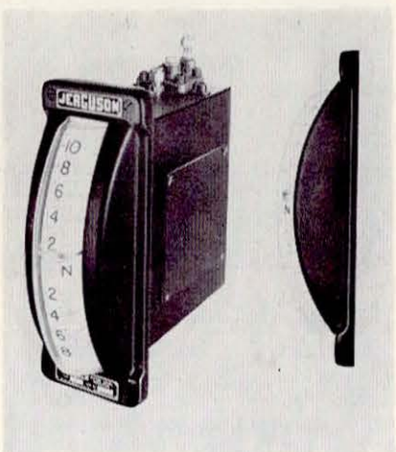
The new W-98 electrode is color marked by a brown end and a white spot. It utilizes alternating or direct current, and is manufactured in ⅛-in. and ¼-in. sizes. It is recommended where a higher hardness deposit is desired than that obtainable with electrodes used for under layers. It

can be used in build-up applications to work equipment, parts, gears, pinion teeth, pump housings, shafts, and sprockets.

Although the type of material involved and the welding conditions can greatly affect the hardness of the deposited metal, generally the hardness of the W-98 electrode deposit will be approximately 250 Brinell as welded and it will flame harden to about 350 Brinell •

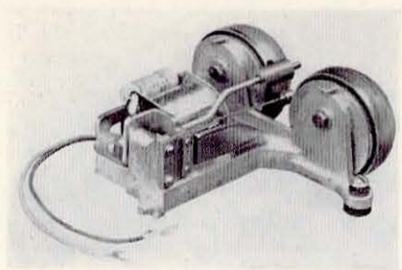
Slot Grinder

Teleweld, Inc., Chicago, has developed an improved model of its rail-slotting grinder. The unit has been redesigned, making it a lightweight self-contained 70 lb. machine, which is half the weight of the previous model. The design retains the wheelbarrow type of rubber-tired wheel for moving it between the joints to be beveled or slotted. The manufacturer states that the improved machine is capable of slotting 15,000 joints without overhaul•



Remote Reading Gage

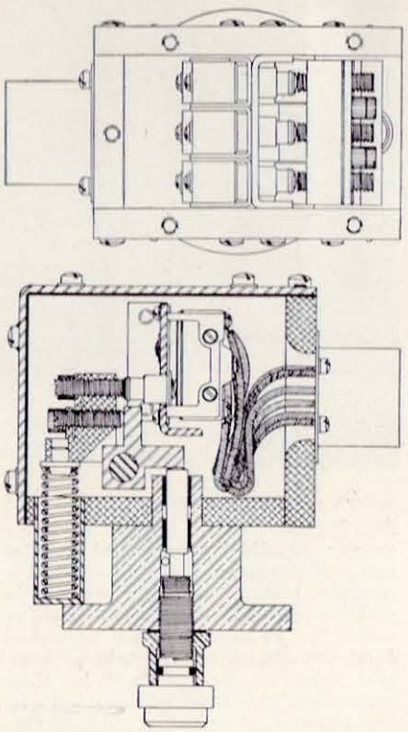
A new convex-scale remote-reading gage has been announced by Jerguson Gage & Valve Co., Somerville, Mass. The convex scale permits full 180-deg. visibility, and is designed so readings of liquid level can be instantly taken from front, or either side, without distortion. Scale markings are directly on the convex face, and the indicator goes clear around the convex surface. Remote readings of liquid levels in boilers, tanks, etc., with accuracy of one-half of 1 per cent of scale readings, are claimed. Models are available for any pressure and range. Light and horn alarm signals, as well as repeaters for repeating gage reading at auxiliary points, are available •



Multifrequency Ringers

New multifrequency ringers manufactured by the United States Instrument Corporation, Summit, N.J., are especially designed for use in the new Western Electric 591 telephone set. These appliances contribute to the high performance of the new sets in telephone systems which use harmonic, synchromonic or decimonic ringing frequencies. They are said to have retained all the outstanding design and construction features of the new Western Electric Type C ringers, and have added features.

The new ringers use a small clapper weight on a flexible arm to strike the gongs, and a separate resonant weight on a solid arm to obtain resonance. This feature contributes to high performance, good tone quality and stability. Because the ringer impedance is very high and current drawn is unusually low, it is possible to use up to 10 ringers bridged on a single line •



Diesel Engine Temperature Control

A simplified means of controlling diesel engine temperatures, the Kysor Multistat, is being introduced by the Kysor Heater Company, Cadillac, Mich. Made to control the operation of shutters, fans, etc., the Multistat is available with three, four, five or six stages. One thermostatic element only is used to control all switch stages. This assures that all operations will occur in proper sequence.

Temperature setting of switches may be adjusted from ½ deg. F. to 10 deg. F. between each switch. The switch operating sequence may be selected and locked. Switches are precision, double-throw, with nickel-silver alloy contacts in heat resistant cases. All moving parts are hard chromium plated and the entire unit is protected by chromium plating, anodizing and the use of non-corrosive materials. The cover is gasketed and sealed and all wiring is carried through a heavy-duty, multiple-conductor plug connector. The overall size of the six-stage unit is 6 in. by 6 in. by 6 in. •

Over 50 diesel road units on the Chicago Great Western Railway use . . .

STANDARD HD
TRADE MARK
Oil

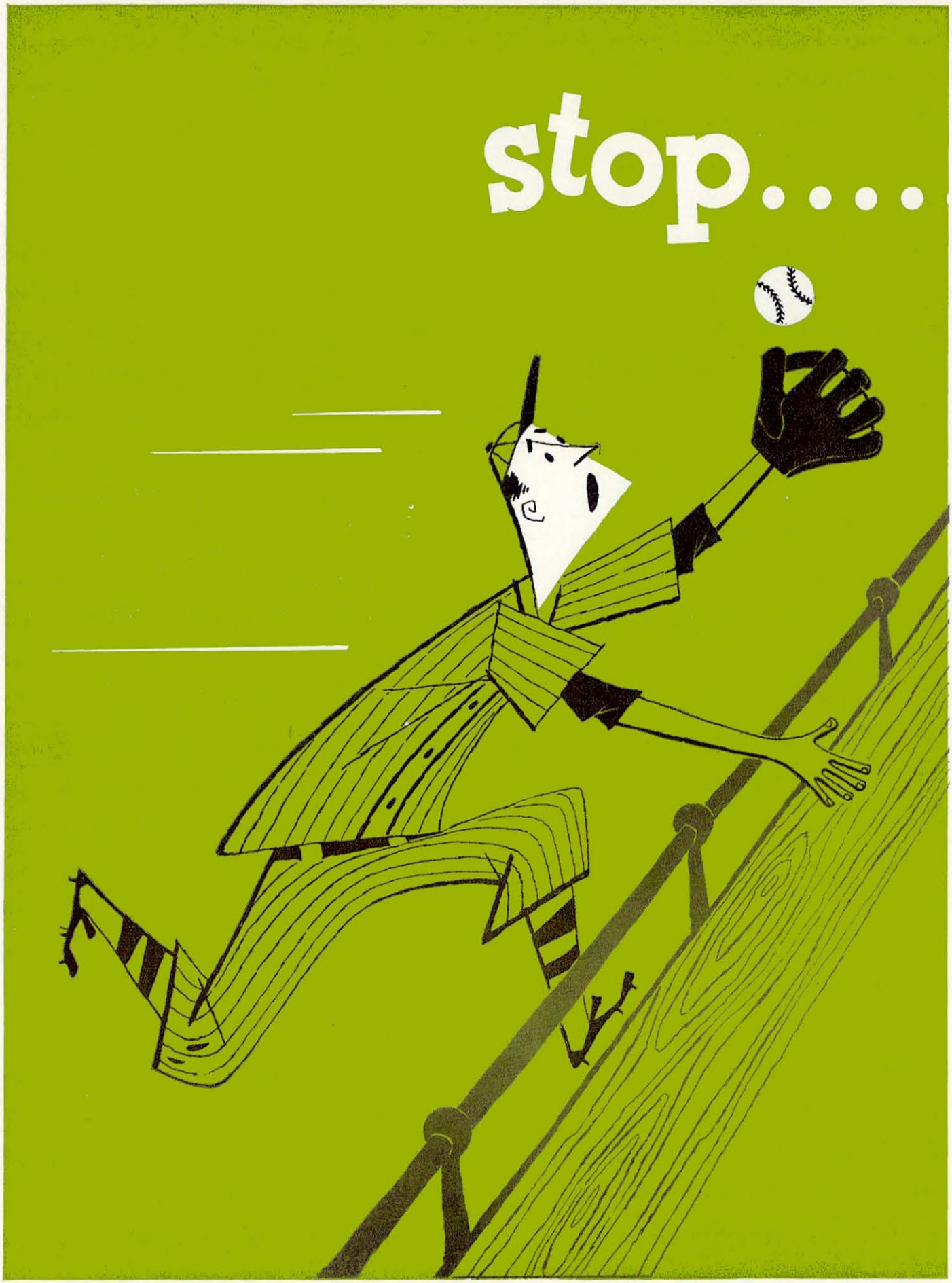
• Serving one of the great industrial and agricultural sections of the country, the Chicago Great Western Railway has been quick to utilize the efficiency and economy of diesel locomotives in its heavy-duty operation.

Used in over 50 diesel passenger and freight road units, STANDARD HD Oil has served on this hard-working railway for over five years. It has provided clean, protective lubrication that in turn has helped keep diesel maintenance costs low.

The Chicago Great Western is one of the more than 70 railroads that now use STANDARD HD oil. This acceptance indicates the ability of this superior heavy-duty lubricant to provide efficient and economical lubrication for all types of diesel locomotives. Make that your basis for investigating STANDARD HD oil. A Standard Oil Railway Department representative will be glad to help you. For his services, write: Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois.

STANDARD OIL COMPANY

STANDARD *(Indiana)*


stop....

It takes a fence to stop a ballplayer with his eye on the ball. Railroad men everywhere with their eyes on safety, dependability and economy rely with confidence on Diamond "S" brake shoes for their stops.

Proved by use in all weather and operating conditions Diamond "S" shoes are the overwhelming preference of the railroads. Our progressive research and manufacturing methods will continue to provide the best in railroad brake shoes.

AMERICAN
Brake Shoe
COMPANY

BRAKE SHOE AND CASTINGS DIVISION

1955

IT&T Sequence Switch

OPENS NEW HORIZONS

FIRST U. S. Installation made by Rock Island

One towerman in Rock Island's Gresham Plant in Metropolitan Chicago handles "rush-hour" traffic easily with

IT&T SEQUENCE SWITCH INTERLOCKING SYSTEM

Close-up of panel and manipulation of control knob which sets up route when "plunged" in.

SHOWN here is the IT&T Sequence Switch Interlocking control panel at the Chicago, Rock Island and Pacific Railroad Company's Gresham plant, located approximately 9 miles south of the Chicago loop.

Gresham not only serves as a junction between the main line of the Rock Island and two of its branches, but also provides a crossing for trains of the B&O and C&O railroads.

One towerman controls the area—without using machine or operator to capacity!

The machine provides for 150 routes. In the plant there are 41 control signals and 48 switch-point machines. The track and signal layout of the area is shown in an appropriate geographic manner on the panel in the control room.

At this complex network of tracks, the IT&T System furnishes speedier, more efficient and dependable route-setting—moving a considerable volume of freight traffic and through and suburban passengers faster than ever... with full protection from conflicting movements... with extra security for passengers, crews, shipments and railroad equipment!

In inaugurating the *first* installation of the IT&T Interlocking System in America, the Rock Island has made a notable contribution to the field of railway signaling. Its working plant at Gresham has successfully demonstrated the scope, simplicity, flexibility and dependability of the system where track layouts are highly complex... where heavy traffic must be handled on tight schedules!

The IT&T "Package" for Railroad Signaling and Communications

Comprises the following high-quality equipments —in addition to Sequence Switch Interlocking

- Train Radio Systems
- Carrier Telephone and Telegraph Systems
- PTM Microwave Systems
- Automatic Telephone Systems
- Train Describing Systems
- Closed-circuit TV Systems
- Train Dispatching Systems
- Train Departure Indicator Systems
- Remote Control Systems for all railroad needs
- Selenium Rectifiers
- Battery Chargers
- Wire and Cable

...and many other systems and components

FEDERAL TELEPHONE & RADIO — FTR — DIVISION OF IT&T

Federal Telephone

RAILROAD INDUSTRY SALES
100 KINGSLAND ROAD, CLIFTON, NEW JERSEY

Interlocking System

TO RAILWAY SIGNALING

IT&T's "push-button" route-setting speeds-up traffic...handles more trains in less time... with greater simplicity, efficiency, economy and dependability!

Turn control knob to desired route and "plunge" it! That's how easily the IT&T System is manipulated to set-up a route!

The "HEART" of the System

The IT&T Railroad Sequence Switch is the vital component that uses automatic telephone techniques to provide better, safer route-setting at

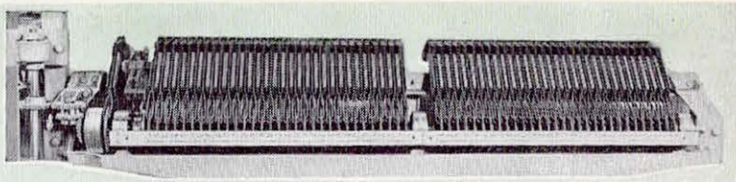
LOWER CAPITAL INVESTMENT!

In automatic telephone systems all over the world the International Telephone and Telegraph Corporation has made wide use of the telephone sequence switch. This multi-contact switch, which controls the progress of a telephone call through a sequence of positions, has been developed by IT&T into its amazingly efficient and versatile *railroad sequence switch*. Fully adapted to the needs of modern railway signaling, it is the prime factor in the great flexibility and reliability of IT&T Interlocking!

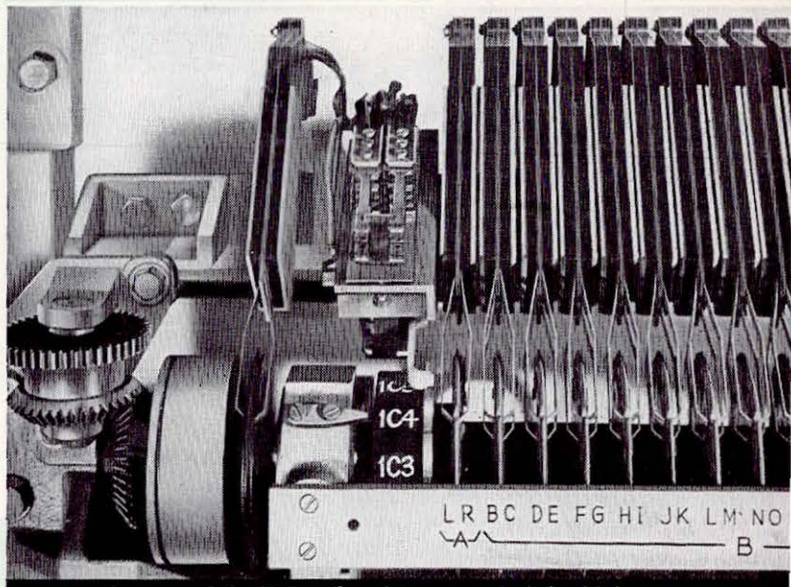
Alleviates Relay Contact Problem

IT&T's railroad sequence switch has reduced the number of relay contacts—a common source of trouble on interlocking circuits. A relatively small number of IT&T switches now perform the interlocking functions otherwise accomplished by many relays.

As a result, IT&T Interlocking reduces maintenance of route-setting circuitry to an inconsequential level... provides a new high in operating economy for management!



The IT&T Railroad Sequence Switch



Key elements of the IT&T Railroad Sequence Switch: driving gears, magnetic clutch, lock, cams and wipers—all enclosed in dust-tight cubicles.

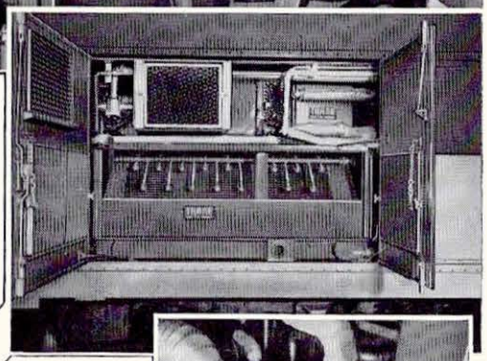
IT&T System gives you today's most advanced automatic interlocking

- **Service-proved Since 1949.** Up to 3,000 train movements daily at Doncaster plant of British Railways.
- **Lower Capital Investment.** Because of basic simplicity of apparatus its manufacturing cost is lower.
- **Eliminates Many Relays.** In one installation 25 IT&T Sequence Switches do the work of 700 relays.
- **New Margins of Safety.** Mechanical interlocking inherent in the sequence switch itself yields the most positive type of interlocking.
- **Adapted to U.S. Signaling.** Meets standards and requirements of the American railroad industry.
- **Fool-proof in Operation.** Unsafe condition cannot be set up by any wrong manipulation on panel.
- **Simple, Fast, Easy Manipulation.** Control knob is turned to the desired route—"plunging" it does the rest.
- **Saves Operator Labor.** Fewer controls to watch. Each knob on panel handles up to 12 routes.
- **Reduces "Break-in" Time.** Relief operators can master details in few minutes after studying panel.
- **Easy, Economical Maintenance.** Simpler circuits, fewer contacts and centralized units minimize upkeep.
- **Long-Life Construction.** Use and tests prove IT&T Sequence Switch will give lifetime of service.
- **Superior Contact Performance.** Higher pressures and more positive wiping actions increase reliability.
- **Fast Apparatus Change-outs.** Rotor assemblies quickly replaced; new cam sets installed in minutes.
- **Visual Route-setting Evidence.** Simplifies and speeds-up testing and checking of circuits.
- **Ideal for Remote Control.** Control panel and interlocking portion can be located miles apart.

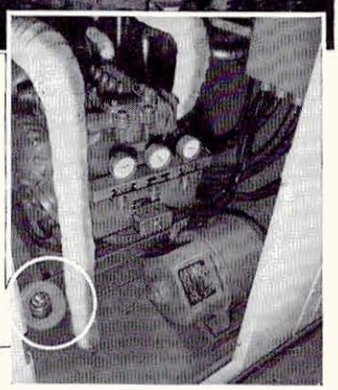
and Radio Company

In Canada: Federal Electric Manufacturing Company, Ltd., Montreal, P. Q.
Export Distributors: International Standard Electric Corp., 67 Broad St., N. Y.

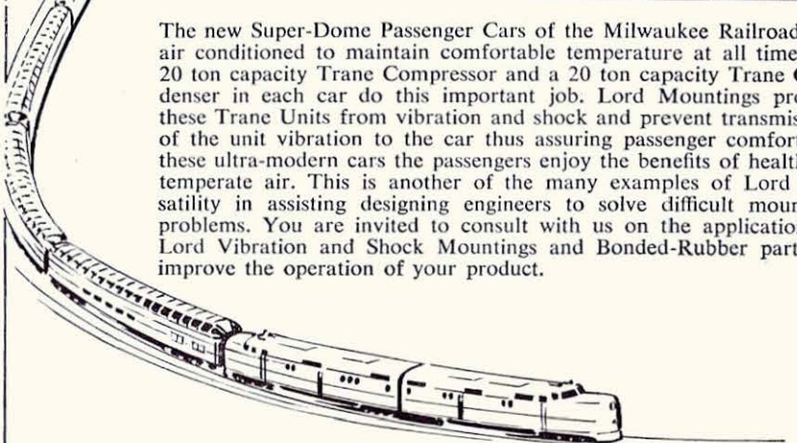
The IT&T Sequence Switch Interlocking System is manufactured in England by an American owned and controlled associate of International Telephone and Telegraph Corporation. Equipment is distributed and installed in the United States by Federal Telephone and Radio Company. For brochures and other data, write Dept. P-147.



with
THE TRANE COMPANY
Air Conditioning Unit
on
LORD
MOUNTINGS...



The new Super-Dome Passenger Cars of the Milwaukee Railroad are air conditioned to maintain comfortable temperature at all times. A 20 ton capacity Trane Compressor and a 20 ton capacity Trane Condenser in each car do this important job. Lord Mountings protect these Trane Units from vibration and shock and prevent transmission of the unit vibration to the car thus assuring passenger comfort. In these ultra-modern cars the passengers enjoy the benefits of healthful, temperate air. This is another of the many examples of Lord versatility in assisting designing engineers to solve difficult mounting problems. You are invited to consult with us on the application of Lord Vibration and Shock Mountings and Bonded-Rubber parts to improve the operation of your product.



BURBANK, CALIFORNIA 233 South Third Street
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DAYTON 2, OHIO 410 West First Street
DETROIT 2, MICHIGAN 311 Curtis Building
NEW YORK 16, NEW YORK 280 Madison Avenue
CHICAGO 11, ILLINOIS 520 N. Michigan Ave.
CLEVELAND 15, OHIO Room 811 Hanna Bldg.

LORD MANUFACTURING COMPANY • ERIE, PA.

LORD BONDED RUBBER

Headquarters for
VIBRATION CONTROL

Current Publications

PAMPHLETS

JOINT EQUIPMENT COMMITTEE [REPORT ON] COSTS OF RAILROAD EQUIPMENT AND MACHINERY, JULY 1, 1953. 19 pages. Association of American Railroads, Finance, Accounting, Taxation & Valuation Department, Transportation bldg., Washington 6, D.C. Free.

Brings up to date through 1952 the report of historical costs of locomotives, freight cars and passenger cars, and average relationship of costs on various types of equipment and machinery.

•

WHAT'S COOKING ON THE B&O? 32 pages, illustrations. Baltimore & Ohio, Public Relations department, Baltimore 1, Md. Free.

Something new in tips for the housewife—a cookbook that combines choice recipes with "dos" and "don'ts" on kitchen safety. The booklet includes some of the popular dishes served in B&O dining cars. Some of the safety "recipes" also are based on dining car experience, since chefs and waiters accustomed to handling hot dishes and sharp utensils in narrow quarters can furnish sound advice on how to prevent accidents. The idea of producing the dual-purpose booklet arose from two important interests of the B&O—pride in its dining car service, celebrated among traveling gourmets; and interest in safety for its passenger public and for its 60,000 employees.

•

THE R B A—ITS STORY. 5 pages. Railway Business Association, First National Bank bldg., Chicago 3. Free.

Explains what the Railway Business Association is; who its members are; why railway suppliers should form such an organization, and how it can accomplish its dedicated objective. Significant accomplishments of the association are listed, as well as recommendations approved by its board.

•

THE SIGNS OF LIFE PROGRAM; FIVE YEARS OF PROGRESS. 12 pages. National Safety Council, 425 N. Michigan ave., Chicago 11. Free.

A report of the Highway-Railroad Crossing Committee of the Railroad Section of the National Safety Council on five years of progress under the Signs of Life Program, the railroads' special contribution to traffic safety.

•

FACTS ABOUT SOUTHERN PACIFIC. 23 pages, illustrations. Free.

Designed primarily for its own employees, particularly new employees, but anyone interested in the Southern Pacific will find this little booklet helpful. Following a brief outline of the extent of the SP system, are sections discussing progressive railroading, what diesels are doing, how the road helps develop the West and Southwest, and freight and passenger service. There then follows a very brief history of the

company, descriptions of its main operating units and other principal properties, headquarters and officers, and employee welfare.

•

RAILROAD FACTS, 1953 EDITION, 96 pages, illustrations. Association of Western Railways, 105 W. Adams st., Chicago 3. Free.

This latest edition of this popular collection of railroad statistics features a summary of 1952 operations. It shows distribution of traffic, service, rates, earnings, purchases, etc., in the same pattern as in earlier editions. For comparisons, average annual figures for five-year periods since World War I are shown along with annual figures for the past decade, on most tables. An attractive cover features photos of a modern classification yard.

•

TRAIN TRAVEL TIPS. 21 pages, illustrations, drawings, map. H. B. Northcott, general advertising manager, Union Pacific, 1416 Dodge st., Omaha 2, Neb. Free.

How to pack for a train trip, what to wear, how to choose your accommodations, the question of tipping, how to arrange stop-overs, side trips, etc., are explained in frank and informal language for inexperienced travelers. The booklet is intended for use by travel agencies and UP traffic offices as an aid "to the infrequent traveler not entirely familiar with details of rail travel."

•

WORKING TOGETHER FOR SAFETY. 32 pages, illustrations. Sample copy and prices for quantities available on request to National Safety Council, 425 N. Michigan ave., Chicago 11.

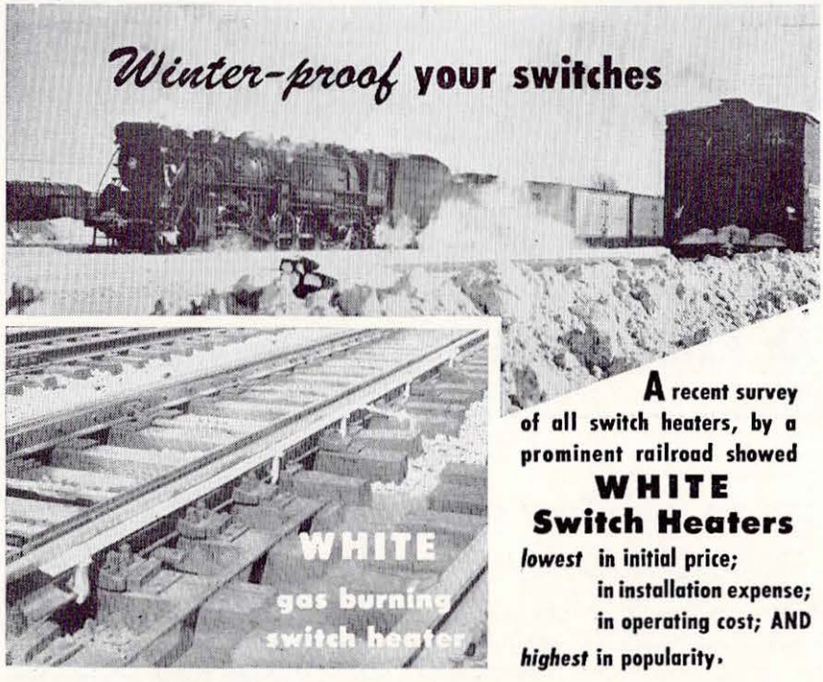
Contains easy-to-read instruction in safe work habits applicable to railroad mechanical, stores and maintenance departments—although written primarily from the standpoint of manufacturing plant safety. Features general safety regulations and special sections devoted to machine operations, hand tools, power tools, protective clothing, fire prevention, materials handling, etc. Illustrations are light-hearted but to the point.

BOOKS

RAILROAD ENGINEERING, Volume One, by William W. Hay. 483 pages, illustrations, drawings. John Wiley & Sons, Inc., 440 Fourth ave., New York 16. $7.50.

This book reviews modern problems, methods and practices. It covers location, construction and maintenance, with the reasons for accepted practice and underlying theory presented wherever possible. Emphasis is placed on principles, materials and components of the railroad plant. Overall cost as a

(Continued on page 46)



A recent survey of all switch heaters, by a prominent railroad showed

WHITE Switch Heaters

lowest in initial price;
in installation expense;
in operating cost; AND
highest in popularity.

Automatic Control for Remote Switches

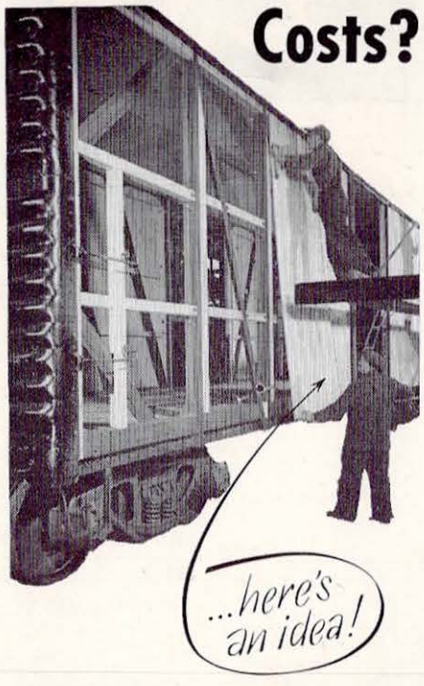
Write for new circular

White Manufacturing Company

Elkhart 28, Indiana

E. R. Mason, New York; John A. Roche, Chicago; Wm. H. Zieglar Co., Minneapolis

Looking for Ways to Cut Car-Building Costs?



Siding and Lining of Rugged Exterior-type Fir Plywood Goes On Fast, Lasts for Years

MORE THAN 100,000 railroad cars have been built or re-built with Douglas fir plywood.

Strong, durable plywood serves as siding and lining on reefers, box cars, work cars, passenger coaches. Used for bulkheads, flooring, baggage racks, cabinets, trim.

Cuts costs because big panels cover quickly, go on fast, require no special tools. Plywood cars are tighter, lighter, economical to maintain. Rugged plywood protects ladings. It's proved in use—a superior material for car building and modernizing jobs.

Write for "Plywood Gets the Highball." Douglas Fir Plywood Association, Tacoma 2, Washington.

Fir Plywood

Industry trademarks are your guide, guard and assurance of DFPA quality-tested plywood

Fir plywood is made in two types. 1. *Interior-type* for indoor or structural uses; 2. *Exterior-type* for uses exposed to water or weather; EXT-DFPA on panel edge means 100% waterproof glue. Grades within each type meet exact use needs.

PlyShield is the "good one side" grade for siding, lining and other jobs where only one side of the panel will be in view in the finished job.

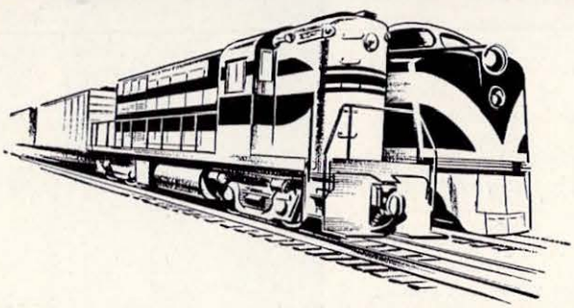
EXT-DFPA

EXTERIOR FIR PLYWOOD PLYSHIELD DFPA INSPECTED EXT-DFPA

SPECIFY DFPA-INSPECTED PLYWOOD

Outstanding benefits of the

Exide-Ironclad



for diesel starting

When you specify an Exide-Ironclad Battery, you are assured of:

Quick breakaway and fast acceleration of engine to firing speed . . . high power reserve at all times for operation of control equipment . . . high availability—uninterrupted on-line service . . . low costs of operation, maintenance, depreciation . . . inherent safety . . . clean, quiet, vibrationless operation.

Rugged Exide-Ironclad Batteries are available in interchangeable sizes for diesel-electric locomotives of every make.

Type MV-17-D Exide-Ironclad Battery —284 ampere hours—for cranking switching locomotives of 600 hp and larger.

Type MV-25-D Exide-Ironclad Battery —426 ampere hours—for cranking road locomotives of the larger sizes.

WHEN IT'S AN EXIDE-IRONCLAD YOUR DIESELS START

YOUR BEST BATTERY BUY AT ANY PRICE

Here's the Inside Story of the EXIDE-IRONCLAD Battery

Inside . . . where it counts most . . . EXIDE-IRONCLAD is entirely different from any other battery. It's made that way by the exclusive IRONCLAD slotted tube construction . . . a principle that provides direct operating-hour savings for you.

POSITIVE PLATE SPINES cast with the heavy top bars, are of SILVIUM, which resists corrosion—contributing to longer battery life.

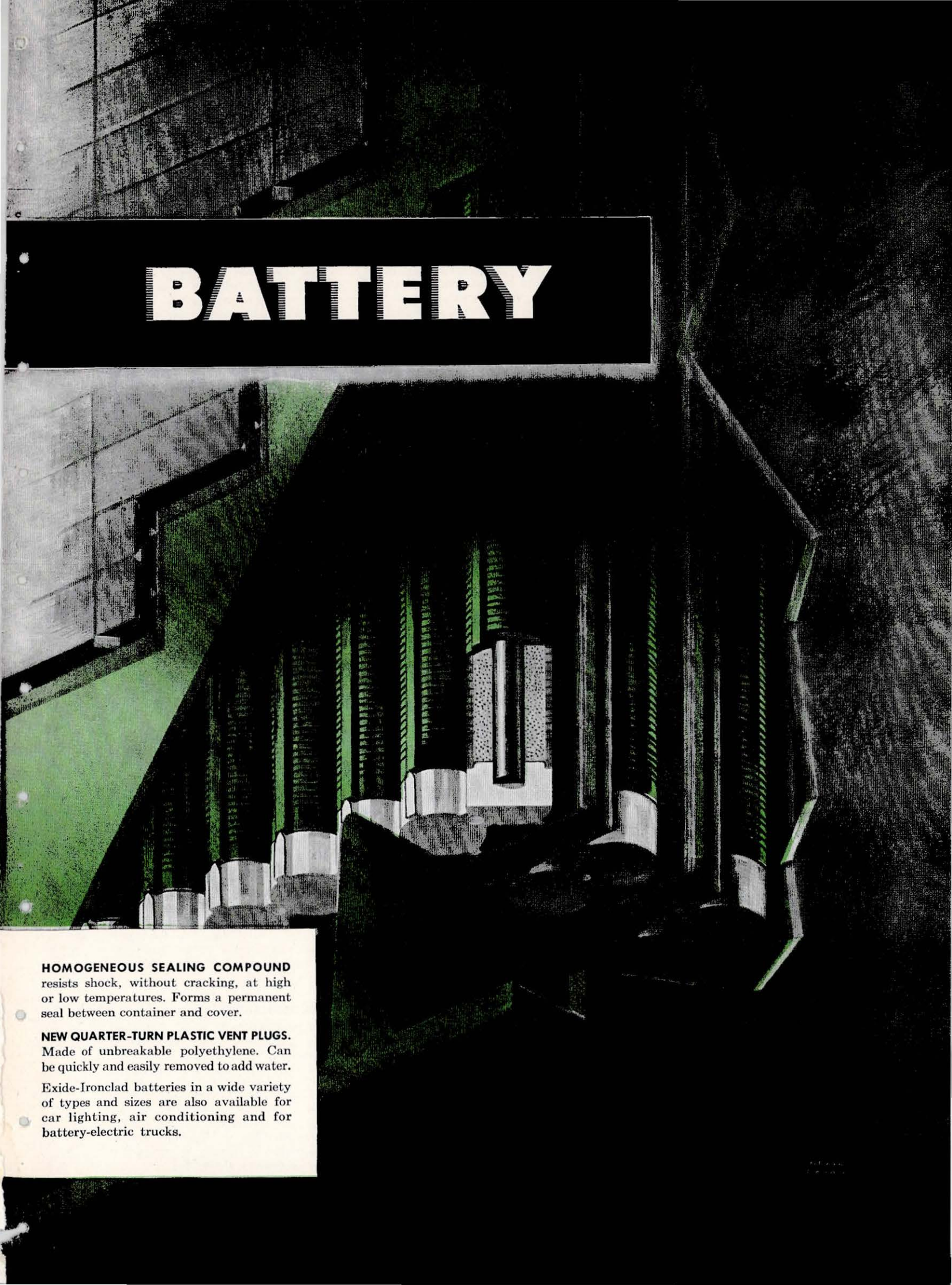
SLOTTED TUBES retain active material in contact with spines, yet permit the electrolyte to penetrate through the active material.

POLYETHYLENE TUBE SEALER. This acid-proof plastic sealer fits snugly into the bottom of positive plate tubes, sealing in the active material for a longer working life.

1888 . . . DEPENDABLE BATTERIES FOR 65 YEARS . . . 1953

THE ELECTRIC STORAGE BATTERY CO., Phila. 2 • *Exide Batteries of Canada, Limited, Toronto*

"EXIDE-IRONCLAD" and "SILVIUM" *Reg. T.M., U.S. Pat. Off.*



HOMOGENEOUS SEALING COMPOUND resists shock, without cracking, at high or low temperatures. Forms a permanent seal between container and cover.

NEW QUARTER-TURN PLASTIC VENT PLUGS. Made of unbreakable polyethylene. Can be quickly and easily removed to add water.

Exide-Ironclad batteries in a wide variety of types and sizes are also available for car lighting, air conditioning and for battery-electric trucks.

(Continued from page 43)
criterion is stressed throughout, as are recommendations of the American Railway Engineering Association. While principles of location and operation are discussed, a major part of the book is concerned with maintenance, in the belief that railway maintenance today offers as much opportunity for the railway civil engineer as did location in earlier days.

•

HUMAN RELATIONS CASEBOOK. National Foremen's Institute, New London, Conn. $3.

The cost of poor human relations becomes apparent to all when the thoughtless action of a foreman or the arbitrary action of management results in a grievance which is carried to arbitration. This is a casebook of arbitration awards, giving grievances presented, bases of arbitrators' decisions, and comment by the editors—members of the staff of Employee Relations Bulletin—on ways the dispute could have been avoided. Presenting well over a hundred actual cases selected for their representative quality, it deals with problems which arise every day in business and industry—absenteeism, vacation pay, grounds for dismissal, the status of union stewards, overtime, defective work, and slowdowns. It can be used in training courses for foremen and supervisors to demonstrate to them the importance of good human relations and the responsibility which rests with them to see that company policies are executed without conflicting with union contracts.

•

1953 INDUSTRIAL MANAGEMENT SYMPOSIUM. 143 pages, mimeo. Consolidated Reporting Company, 303 Fourth ave., New York 10. $3.75.

This symposium contains 27 articles reproduced through the courtesy of trade magazines and other sources. Some are addressed to top management; others cover industrial relations, supervisory training, etc.

•

BRITISH EXPRESS LOCOMOTIVE DEVELOPMENT, 1896-1948, by Edward Cecil Poultney. 175 pages, illustrations, drawings. George Allen & Unwin, Ltd., London, England. Distributed in U. S. by Macmillan Company, 60 Fifth ave., New York 11. $4.75.

The author traces development of British express passenger locomotives designed and built between 1896 and the present day. Locomotives which were noteworthy for some new departure in design or for unusual constructional details are presented so as to show the progress of modern design. Information is given concerning their performance, based on official tests. The photographs illustrate successive advances of the past 50 years, and end with the last engines to be built by the railways before being merged into the British Railways.

•

INDIAN RAILWAYS: ONE HUNDRED YEARS, 1853 TO 1953. 200 pages, illustrations. Ministry of Railways (Railway Board), New Delhi, India. Rs.15/ or 25 sh.

Indian Railways completed 100 years of development and operation April 16 of this year. Earliest beginnings of railway construction in India, later phases of expansion and development, problems and difficulties which had to be faced in the process, and final emergence of Indian Railways as the largest nationalized undertaking in the country, are all described. Various aspects of railway operation are discussed in detail. At the threshold of the second century of their history, Indian Railways are participating in their nation's five-year plan, designed to secure self-sufficiency in food production, accelerated industrial expansion, and all-round economic development.

TRADE PUBLICATION

AIRTUBE SYSTEMS. 52 pages, illustrations. Catalog 8255, Lamson Corporation, Lamson st., Syracuse 1, N.Y.

Describes the Lamson pneumatic dispatch tube system, and presents actual applications in various industries. It shows how, by replacing messenger service, the system can eliminate waiting for waybills on incoming trains, or holding of trains in departure yards for delivery of waybills.

THE "WHAT" Nearly forty steel mills, here and abroad, have purchased Differential Air Dump cars in capacities ranging from 30 to 60 cubic yards (level load).

THE "HOW" Massive air cylinders on both sides power the two-way, 50° dumping action. Wide spacing of fulcrums contributes to riding stability. No locking mechanism — no accidental dumping.

Down-folding doors chute the load a greater distance from track. Positive door return when car is righted. Overall ruggedness and simplicity of design mean minimum maintenance.

THE "WHY" It all adds up to a "higher ratio of payload to dead weight," superior performance — and ultimately to a prettier picture on the operating statement. That's "why" more and more steel mills have put Differential cars on their "earn-roll."

Other Differential Products: **Locomotives, Mine Cars, Mine Supply Cars, Rock Larries, Mantrip Cars, Rotary Dumpers and other dumping devices, and Complete Haulage Systems.**

DIFFERENTIAL
STEEL CAR COMPANY
FINDLAY, OHIO

SINCE 1915—PIONEERS IN HAULAGE EQUIPMENT

PEERLESS

PROTECTION

DON'T RISK today's high-priced lading . . . The H-I-B2, your **PEERLESS** protection against loss!

PEERLESS
EQUIPMENT
COMPANY

332 SOUTH MICHIGAN AVENUE
CHICAGO 4, ILLINOIS

AND NOW-

Out of the Great Comes the NEW

With the advanced Diamond "Z" Grid, Gould makes another contribution to storage battery perfection! Here is the most recent achievement of the famous Gould Laboratory . . . one more example of Gould progress through *continuous* battery research.

New research developments make it possible to combine the design advantages of the original Diamond grid and the "Z" grid. The Diamond "Z" gives you the structural design of diamond bracing and overall mechanical strength, and still retains the uniform density of grid members so well achieved in the "Z" design.

This advance could only come from Gould . . . for only Gould has the experience with both the Diamond grid and the "Z" grid. The Diamond "Z" grid is another step forward in Gould's research program to give you extra battery performance, longer battery life. When you buy, buy Gould!

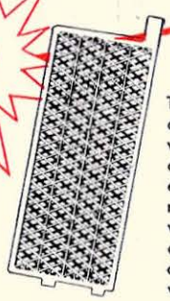
HERE'S WHAT YOU GET:

1. A grid built to the demands of users with top performance and long life.
2. A grid that has been tested under rugged operating conditions . . . tough day in and day out service.
3. A grid built to meet tomorrow's needs but available today . . . years ahead of requirements.
4. A grid that cannot "grow" under the toughest kind of treatment . . . with that extra measure of strength for every application.
5. A grid that is built with diamond bridge-like construction . . . with extra strong members to withstand abuse.
6. A grid that delivers the rugged service that future demands will require . . . demonstrated in every conceivable test for long, dependable operation.

Write for the new Catalog featuring this amazing grid that delivers more for your money.

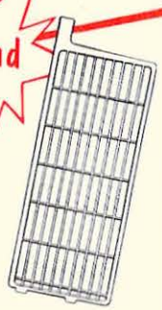
TODAY THE GOULD "Z" DIAMOND BATTERIES

1st **THE DIAMOND GRID**



This basic grid design was advanced for its day, highly efficient. For many years, it was the standard by which other batteries were judged.

2nd **THE "Z" GRID**



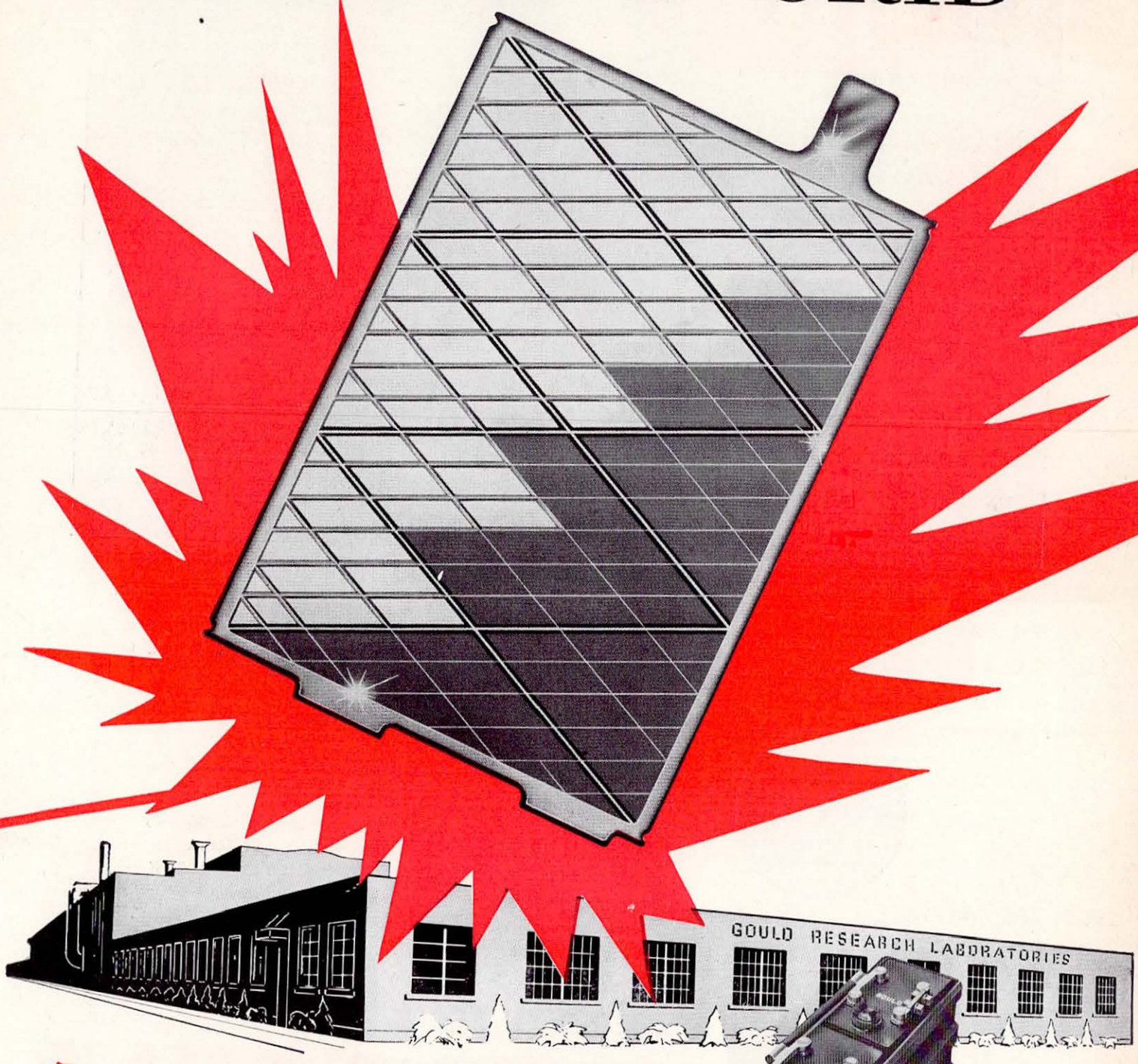
Here was a tremendous advance in battery design. Intensive Gould research produced an improved casting method, which for the first time made possible larger, longer-life grid members.

GOULD

GOULD-NATIONAL

©1953 Gould-National Batteries, Inc.

Gould Laboratories
DIAMOND "Z" GRID



RAILROAD BATTERIES

BATTERIES, INC., Trenton 7, New Jersey

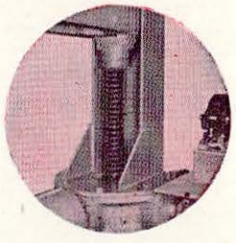
Always Use Gould-National Automobile and Truck Batteries

Specify
GOULD KATHANODE
BATTERIES
for Air Conditioning and
Car Lighting

A complete Whiting Drop Table installation with a Whiting Overhead Electric Traveling Crane at the Missouri Pacific shop in Houston, Texas.

Today's quick change for Today's run!

Convenient portable push-button control permits operator to stand at point of best visibility.



Built-in safety! Bevel gear housing and screw raises and lowers top.

In for a Diesel truck change this morning—*out* for this evening's trip! With a Whiting Drop Table, lay-up time for repair and maintenance has become a matter of hours instead of days!

Designed and engineered to meet your specific requirements, Whiting Drop Tables have many uses in Diesel or steam shops such as: removing driver wheels with motor; changing trucks, springs and draft gears; lowering pairs of wheels or trucks for inspection and repair, and equalizing spring rigging.

Hundreds of Whiting Drop Tables are serving leading railroads . . . speeding repair and maintenance . . . saving manpower and assuring more profitable operation. Write today for complete information.

WHITING CORPORATION
15603 Lathrop Avenue, Harvey, Illinois

OTHER WHITING RAILROAD PRODUCTS

Train Washers • Electric Portable Jacks • Cross-Over Bridges • Overhead Cranes • Trambeam Overhead Handling Systems

ONLY TWO PARTS

ALCOLID® the lifetime journal box lid

With only these two parts the ALCOLID is one of the simplest and most dependable lids ever designed, giving up to 17 years of freight service* with only negligible evidences of wear.

The sturdy, full-section all-steel construction of the ALCOLID has no thin parts to rust away. The square-headed, locked retaining pin never rotates, thus eliminating wear on the eyes of the hood. Fully articulated, the ALCOLID provides tight closure; a rugged, torsional spring exerts fifty pounds pressure to prevent lid vibration. In addition to all this, ALCOLIDS can be installed in a matter of seconds.

Why not take advantage of all these features? Send for full information to your ALCO sales representative in New York, Richmond, Cleveland, Chicago, St. Louis, St. Paul. San Francisco.

*according to actual test runs

ALCOLID
PATENTED
RAILWAY STEEL-SPRING DIVISION
AMERICAN LOCOMOTIVE COMPANY

THE ENGINEER'S REPORT

DATA

LUBRICANT RPM Delo Oil R.R.

UNIT Diesel locomotive

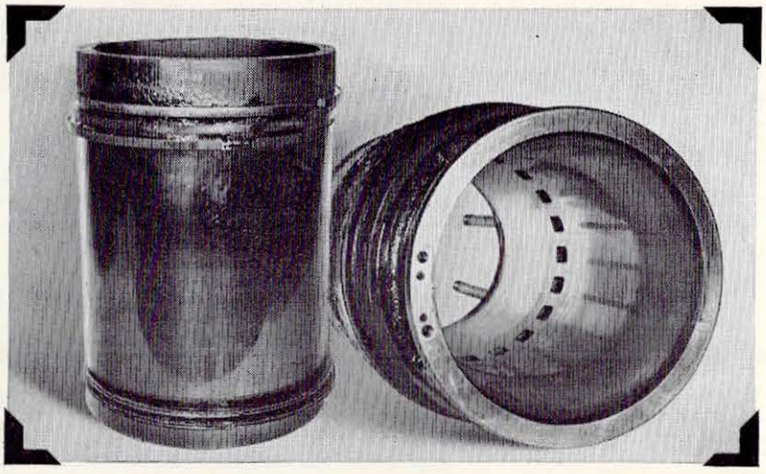
SERVICE Transcontinental freight—grades to 1.8%

PERIOD 3 years

LOCATION Minneapolis, Minn., to Wenatchee, Wash.

FIRM Great Northern Railway

504,851 freight miles in 3 years without overhaul!



ONLY 0.002 INCH WEAR was miked on liners of this locomotive's engines when they were inspected after 504,851 actual miles. Lubricated with RPM DELO Oil R.R., the engines operated without trouble of any kind during 3 years of tough service hauling freight over the Continental Divide. Representative piston and liner, above right, shown as they appeared when taken from one of the engines, demonstrate good condition of parts after this extended service. All rings were free when engine was torn down. Overhaul was performed only because of time and mileage on engine, which was estimated to have idled the equivalent of 100,000 miles in addition to actual mileage. Besides low wear of liners, other wear measurements (inches) were only: Wrist Pin—0.001; Wrist Pin Bushing—0.0015; Carrier Bushings—0.0015; Oil Ring—0.003.

REMARKS: Great Northern Railway's diesels haul heavy freight up grades as severe as 1.8%. Engines operate in dust and heat in summer, snow and extreme cold in winter.

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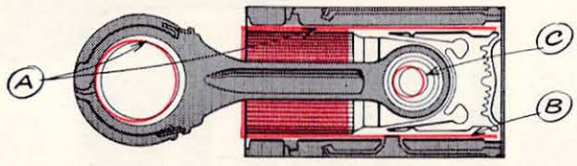
How RPM DELO Oil R.R. prevents wear, corrosion, oxidation



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B. Anti-oxidant resists deterioration of oil and formation of lacquer...prevents ring-sticking. Detergent keeps parts clean...helps prevent scuffing of cylinder walls.

C. Special compounds stop corrosion of any bushing or bearing metals and foaming in crankcase.

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This week's limerick submitted by W. C. Knoble, Asst. Vice President, Minneapolis & St. Louis Ry. Remember: $5 goes to those sending us limericks we can use. Where's yours?

Benchmarks and Yardsticks

ONE OF THE COUNTRY'S great railway executives has written to say that: "It has been my good fortune to read the *Railway Age* for many years. I have admired its editorials and have found them and the editorial policy almost universally sound. But the last paragraph of 'Benchmarks and Yardsticks' in your issue of September 7 is to me distinctly disappointing."

The paragraph our friend refers to conveyed the observation that there are two ways of getting people to work together—the method of coercion, as practiced under a dictatorship, and the method of explanation and persuasion, which prevails in the free part of the world. It was further noted that it was easier for the boss if he had a whip to crack, but that isn't the way we operate in this country.

"The inference is," our friend goes on to say, "that under a dictatorship the bosses can obtain the same results easier than in a free land such as ours." With such a conclusion, our correspondent does not agree. He believes that "the driver type" of officer is on the way out and that "leaders stand 'way out ahead in obtaining desired results."

Your reporter is in complete agreement with his friendly critic in everything except his impression that this column has no choice as between dictatorship and leadership. On the contrary, nobody could be more wholly partisan in preferring leadership to dictatorship than we are.

Dictatorship usually comes along, though, when leadership falls down. Cooperation in production we must have—otherwise everybody starves. Effective leadership induces this cooperation, to the advantage of everyone; but if leadership fails, dictatorship is the inevitable result. There is very little power of coercion left to industrial (including railroad) leadership today; and with that development we have no quarrel. But it does put an added burden on the powers of explanation and persuasion needed by the leaders—powers which their predecessors did not require in quite so large a measure.

It has long been our conviction that the systems known as communism, fascism and socialism —while superficially quite different—are fundamentally the same thing. All of them have the common characteristic that production is organized with government behind it, and that people work together under either of the three systems, not because they want to but because they are compelled to do so—either by the fear of jail or starvation. The only system of cooperative productive effort which leaves the individual with freedom of choice —so he can cooperate where and how he can do the best for himself—is competitive capitalism.

J.G.L.

the Pioneer of Built-in Stabilizers had to be GOOD

Barber Trucks exhibit the Pioneer Spirit. They were the first with built-in stabilizers, first with a real railway-type construction which assures the easiest possible assembly and maintenance.

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Research and development in materials and design are constantly carried on in order to bring the advantages of every improvement to the growing list of users of *Barber Trucks*.

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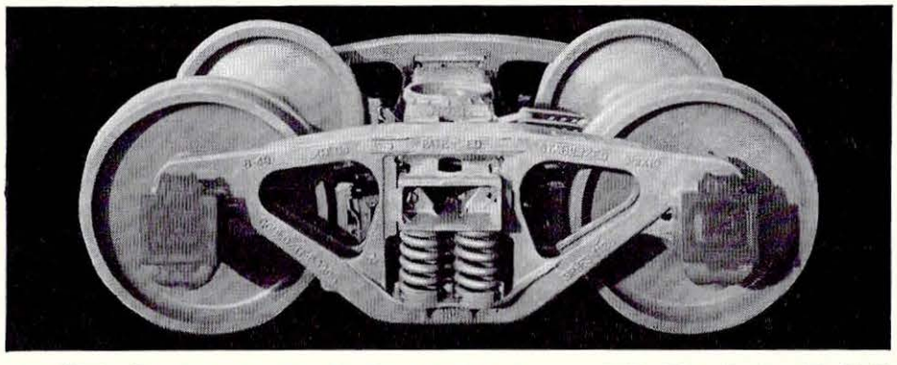

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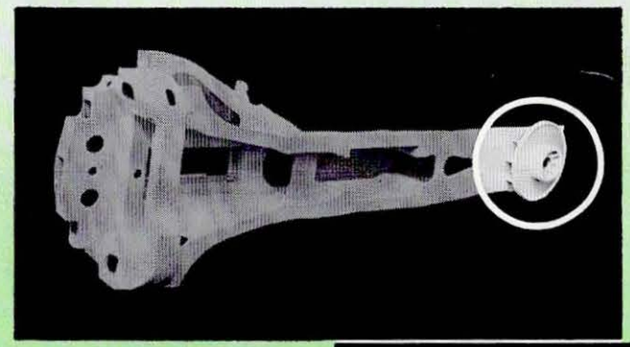
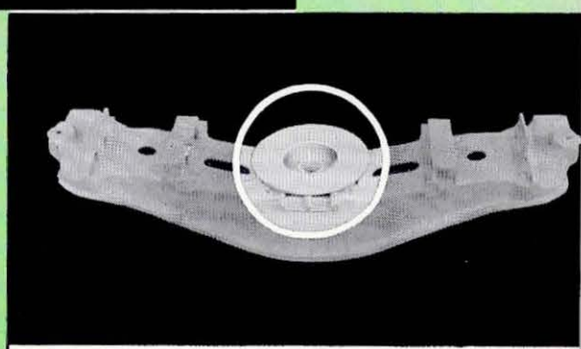
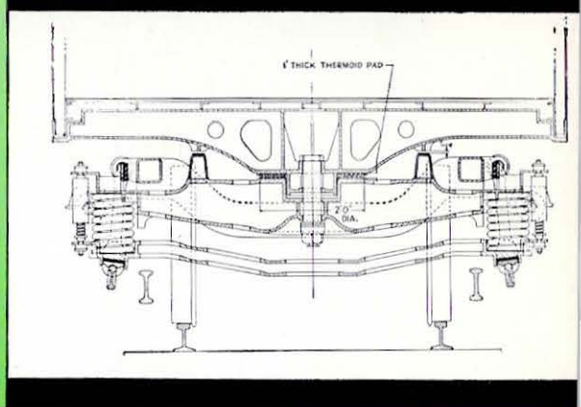


Body Central Bearing Shown on Underside of Cast Steel Platform Center Sill.



Truck Central Bearing Applied to Cast Steel 4-Wheel Passenger Truck Bolster.

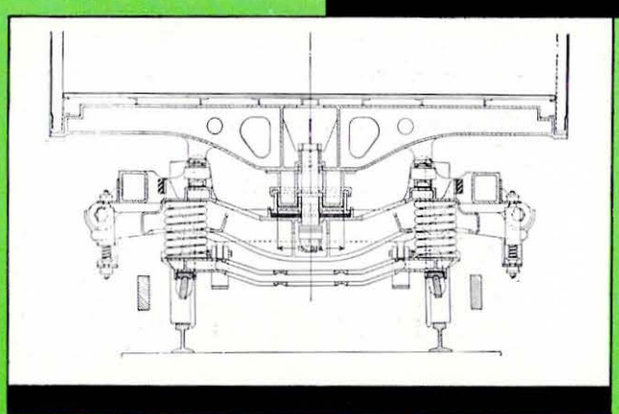


Sectional Drawing Through Bolsters Showing Arrangement of 24" diameter Central Bearing.

The latest in the long list of General Steel Castings' engineering achievements is the Central Bearing — a new type center plate arrangement for new or existing passenger train cars, which combines the functions of the center plate and side bearings.

This new Central Bearing eliminates shimmy (the result of truck hunting), greatly improves riding qualities and increases wheel mileage between turnings. Side bearings are not required, thereby eliminating their original expense and the necessity for their maintenance and clearance adjustment. The Central Bearing requires no lubrication.

Applicable to new cars or to improve existing cars, the Central Bearing assures a substantial saving in maintenance and a better riding car.



Sectional Drawing Through Bolsters Showing Design of 15" diameter Center Plate.

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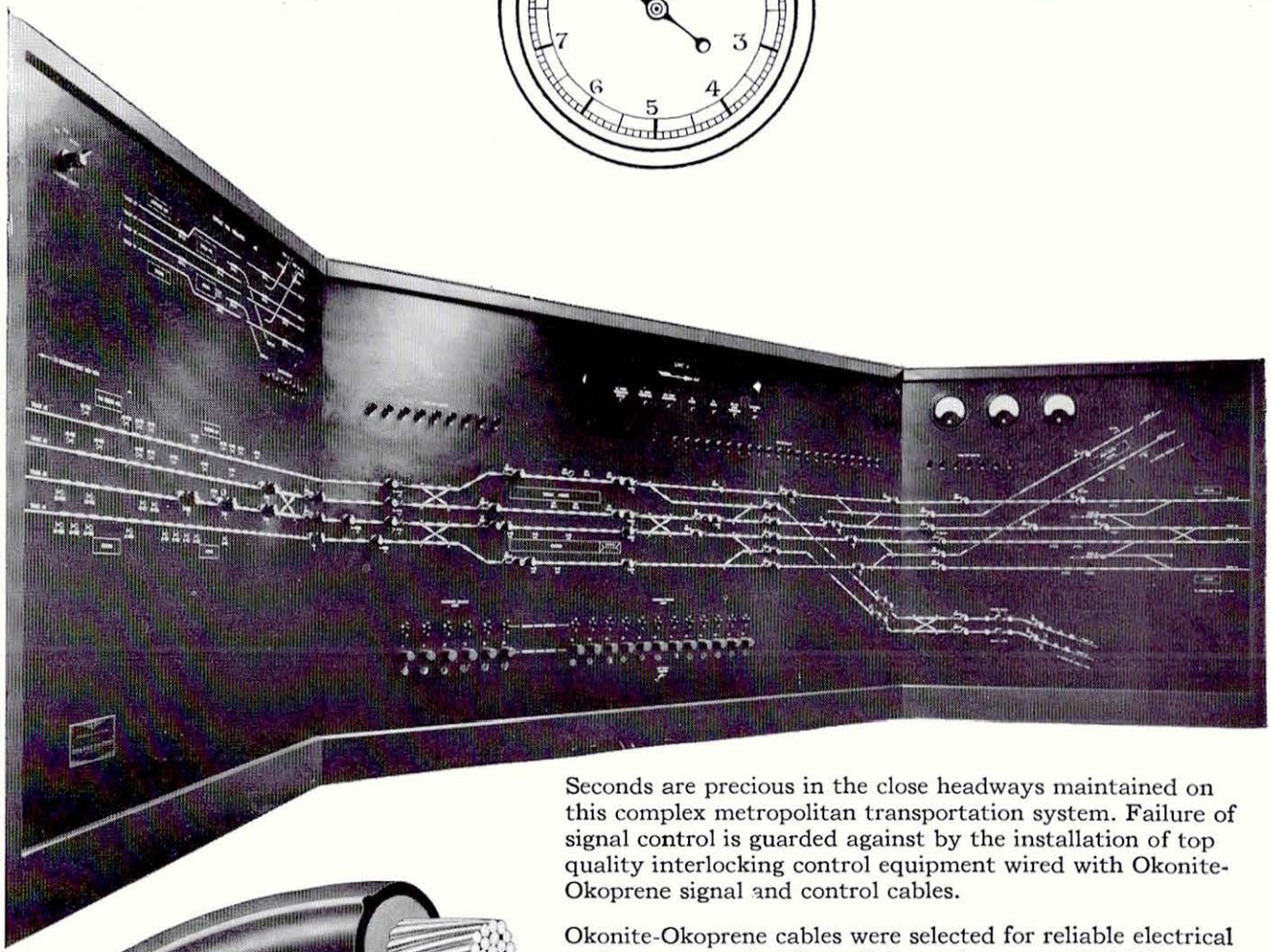
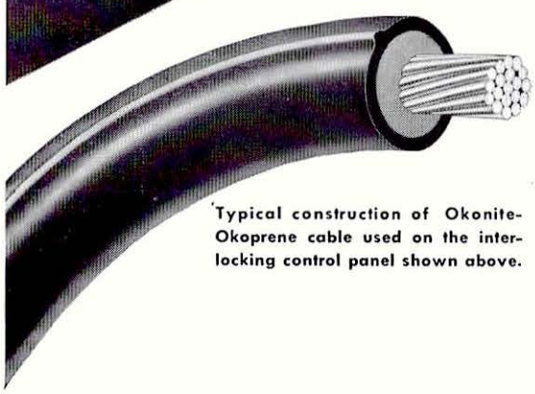
SIGNAL CONTROL FOR "STOP WATCH" PASSENGER TRAFFIC





Typical construction of Okonite-Okoprene cable used on the interlocking control panel shown above.

Seconds are precious in the close headways maintained on this complex metropolitan transportation system. Failure of signal control is guarded against by the installation of top quality interlocking control equipment wired with Okonite-Okoprene signal and control cables.

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75th ANNIVERSARY

How to Minimize Urban Congestion

Most of this country's big metropolitan communities are being choked at the heart by street traffic congestion. Meantime, few of them are doing anything—beyond the adoption of a few palliatives—to alleviate the condition.

Two "Horrible Examples"

In a speech at Toronto on September 24 before a convention of port "authorities" Chairman David I. Mackie of the Eastern Railroad Presidents Conference drew attention to the failure of the Port of New York Authority to pay any great attention to the provision of railroad and marine facilities—which was the principal purpose for which the Authority was originally created. Instead, the New York port body has become, primarily, an operator of highway bridges, tunnels, airports, and truck and bus terminals. Meanwhile, the New York waterfront has become more and more cluttered up all the time with highway trailers—a condition which is avoided when traffic moves directly between ship and rail. In other words, much of the transportation development that has been carried on in New York has been of a kind which increases traffic congestion instead of alleviating it.

The Port Authority's operations in financing continued improvements for highway transportation is an activity which, in itself, has met a public demand and, hence, cannot be criticized. On the other hand, once added traffic is attracted to the city by these facilities, it increases the congestion; and that is a condition that somebody else has to worry about. It may be doubted that street movement of traffic which could be economically moved by water does much to increase the efficiency of New York as a port city.

Vice-President Walter Patchell of the Pennsylvania—also on September 24—spoke in Philadelphia at an urban traffic symposium. He cited the New York Times as his authority for the statement that a crosstown taxicab in New York makes just about the same time today that a horse-drawn cab did 50 years ago, while a modern bus takes about as long to go the length of Manhattan island as a horse-car did at the turn of the century.

As for Philadelphia, where traffic congestion is said to be occasioning a loss of $150,000,000 annually, Mr. Patchell recommended greater use of public transportation facilities—the subways and elevated lines, and the railroads' commuter trains—for the bulk of into-and-out-of-the-city passenger movement.

Remarking that he himself (like practically everybody else) is a motorist, he went on to advocate the use of automobiles for other kinds of transportation than "commuting," where convenient public services are available. He pointed out that the PRR is increasing the number of its suburban trains in the Philadelphia area, to make such service more attractive—and hence to help reduce the urban congestion occasioned by excessive commuting by private automobile. He went on to tell of the great terminal improvements his railroad has been making in Philadelphia, allowing more room for street facilities, and pointed out that this was no new development.

"A hundred years ago," he said, "our trains, both freight and passenger, arrived at the bank of the Schuylkill by steam power and from there were drawn by teams of horses across a bridge at Market street and on down Market street as far as Second street. But even in those horse-power days congestion developed. In 1864 we stopped bringing our passenger cars over the river; passengers got off at West Philadelphia and continued by carriage or foot the rest of the way downtown. Freight cars kept coming down Market street for 10 more years; but after 1874 we stopped bringing them beyond 18th street. Incidentally, the freight cars of the day had a 20,000-pound capacity and were 24½ feet long—about half the weight and size of trucks we now allow on our streets."

The greater speed of highway vehicles—now, compared to 50 years ago—ought to be sufficient to take care of a lot of growth in street traffic, obviating undue congestion, except for the fact that the streets are being used for kinds of traffic that was not on them 50 years ago. The fact is, indeed, that the streets have been turned into freight yards by the operators of big trailer trucks; and a lot of freight handling and interchange which used to be done on private property on the outskirts of the cities (when all but local freight moved by rail) is now done right downtown, on the streets themselves.

Needed: A Solution, Not a Scapegoat

What the big cities need is a solution to the problem—not just a scapegoat on which the present situation can be blamed. The truck operators certainly can't be criticized, as long as they keep within the law, for doing their switching and transfer operations in the city streets, so long as

the city fathers are generous enough to make these facilities available to them.

It is no more than human nature, either, for a body like the Port of New York Authority to go deeply into the bridge and tunnel business—where the public demand is, apparently, all but insatiable—and to pay scant attention to the less spectacular opportunities which exist to make New York a less expensive port for the interchange of rail and marine traffic. The fact cannot be overlooked that the early designs of the Port Authority for improved railroad facilities in New York met with no great enthusiasm from the railroads. Whatever the explanations or excuses may be, however, congestion confronts New York and other large cities and little or nothing really effective is being done to correct it. The railroads—taxed to the hilt on their unprofitable commuter facilities—are without the means or incentive to make improvements in railway facilities to keep pace with the tax-free and tax-financed improvements in highway facilities, which doubtless explains much of the increase that has occurred in automobile commuting.

There are two steps which would largely cure strangulation of the cities at the center—(1) keeping all unnecessary freight operations away from congested areas, limiting vehicles to easily maneuverable size, and (2) making improvements for mass transportation, at least to a degree equal to those provided for individual transportation. It is certain that the problem of urban congestion never will be solved by following the present course—i.e., continuing and adding to burdens placed upon the kinds of transportation which reduce street congestion, while hot-housing the kinds of transportation developments and practices which inevitably promote congestion.

Civic organizations in the major cities are devoting increased attention to this serious problem, and railroad men have an opportunity to perform a public service by making constructive suggestions for its solution. Automotive transportation, both commercial and private, is unquestionably the dominant factor in intra-urban traffic; and the role of mass transportation is supplemental—but none the less important, because complete individualization of all traffic is not comparable with the existence of large cities.

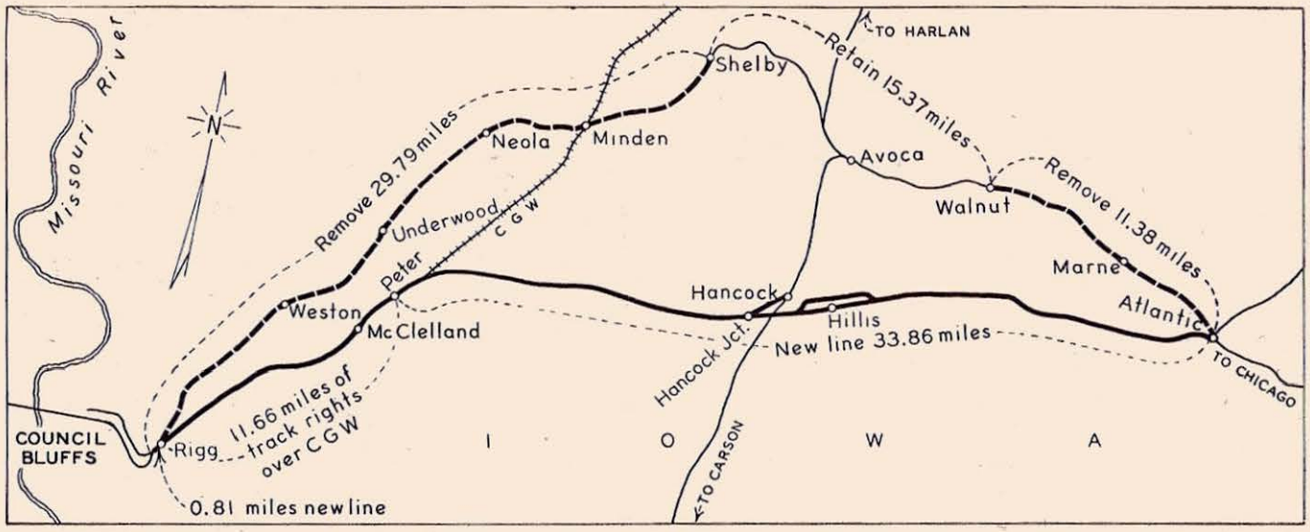
Something New in "Community Relations"

The Eastern railroads are conducting a rather intensive "pilot operation" in their relations with four important communities in the territory—Indianapolis, Columbus, Buffalo, and Boston. In each of these cities a "railroad community committee" has been appointed, to take responsibility for joint railroad relations with community organizations—the purpose being, not simply one of securing improved interpretation of railroad problems to the community, but also "to learn more of the public's attitude toward existing railroad policies in an effort to correct these policies where they are not believed to be consistent with the community interest." The new committees, in other words, are not a one-way street, but are definitely two-way and are designed "to stimulate among railroad people a genuine and active interest in community affairs."

Supplementary to—and distinct from—these community committees, the railroads have arranged in the same localities to have instruction provided for railroad people at local educational institutions in public speaking on transportation subjects. The educational courses involve, of course, not merely the mechanics of public speaking, but also the acquirement of basic information on current transportation problems. The purpose is to increase the number of railroad men who are competent to speak interestingly and informatively before local groups on transport questions.

It is the purpose of this "pilot operation," of course, to determine the effectiveness of this approach to community relations. If the effort proves as successful as the sponsors hope, it will undoubtedly be extended to other localities. The railroads have for many years been able to respond as an industry on the national level and, to some degree, territorially—but they have seldom been so well organized locally. Most important localities with more than one railroad have, of course, their local organizations of operating officers—but such organizations have usually not assumed or been assigned the kind of activity known as "public relations"; and the joint effort (and much of such effort *has* to be joint) has usually been rather informal and temporary.

If these newly formed committees are given adequate authority to speak for their principals—and if they are adequately instructed in their duties and opportunities—they might well provide the railroads with a link in their relationships with the rest of the community which could do a lot of mutual good. Especially important in this experimental operation is the provision of two-way communication; and, equally so, the opportunity afforded to railroad men, especially the younger ones, to get practical training in talking in public about the phases of transportation in which the public has an interest.



ONE OF THE LONGEST LINE CHANGES made in recent years is the Rock Island's new Atlantic to Council Bluffs cut-off. Work was started in October 1951 and the line was placed in operation September 14, 1953.

ROCK ISLAND COMPLETES . . .

34-Mile Line Change

New route between Atlantic, Iowa, and Council Bluffs cuts down distance, curvature, grade and train time

On September 14 the Rock Island marked the formal opening of its new single-track cut-off route between Atlantic, Iowa, and Council Bluffs, a project that is the last and largest of a series of line changes made over the past 16 years in the road's program of progressive improvements.

This latest line change places the road in a better competitive position with five other railroads serving Omaha and Council Bluffs from Chicago. The old route of the Rock Island ran northwest out of Atlantic to Shelby, where it veered southwest into Council Bluffs. The new route cuts directly across country from Atlantic to McClelland, then utilizes the existing track of the Chicago Great Western to a new connection into the Rock Island's new East yard at Council Bluffs—saving a total running distance of 10.21 miles.

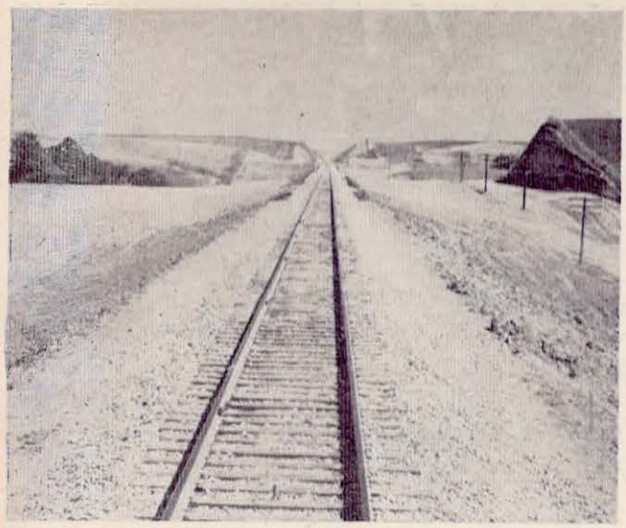
In addition to the savings that are effected in both operating and maintenance expenses by reason of the shortened distance, the new route has other advantages. The old line was built in 1869 and, in common with railroad construction practice of those days, "followed the dirt" to minimize grading expense. Hence, this line was afflicted with many curves and undulations. The new route saves 1,640 deg. of central angle and 131 ft. in rise and fall, thereby producing faster operation, lower maintenance costs, and tonnage ratings ranging from 36 to 50 per cent higher for westbound traffic and from 32 to 44 per cent higher for eastbound traffic, depending upon the class of diesel power used.

Although permissible train speeds on the old route were as much as 79 m.p.h. in some locations, this speed was reduced in many places to as low as 45 m.p.h. because of restrictive curves. On the other hand, the new route permits a constant speed of 79 m.p.h., except at connections with the CGW and into the new East yard at Council Bluffs.

Another disadvantage of the old route was that an extensive portion of it followed the valley of Mosquito creek, which recently had been straightened in such a way as to increase its water velocity, with the result that

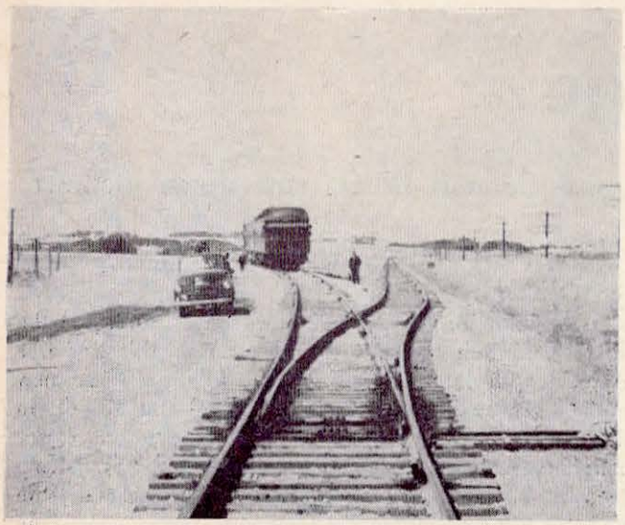
Characteristics of New and Old Lines, Atlantic to Council Bluffs

	New line, Atlantic to McClelland	CGW, McClelland to Council Bluffs	New connection east of Council Bluffs	Total via new line	Former line, Atlantic to Council Bluffs	Reduction
Mileage	33.86	11.66	0.81	46.33	56.54	10.21
Central angle	235° 51′	174° 01′	70° 36′	480° 28′	2,120° 41′	1,640° 13′
Rise and fall	1,193.19	269.43	32.48	1,495.10	1,626.32	131.22
Maximum curvature	1° 00′	2° 00′	3° 51′	—	4° 00′	—
Number of curves	15	11	2	28	68	40
Maximum grade	1.00% Momentum	1.2%	1.20%	1.21%	1.60%	0.39%
Ruling grade	0.80%	Av. 0.45%	0.80%	0.80%	1.00%	0.20%

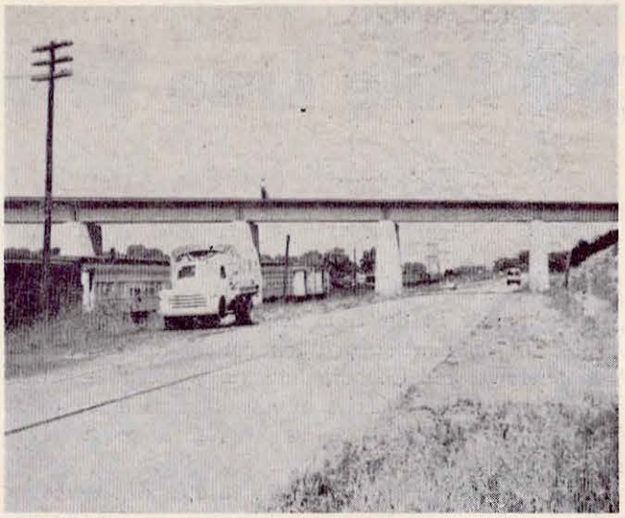


THE CUT-OFF saves 10.21 miles of distance by being constructed directly across country from Atlantic, Iowa, to McClelland.

TODAY'S LARGE EARTHMOVING MACHINES made it feasible to construct this new line. More than seven million cubic yards of earth were excavated.



BEGINNING OF THE NEW LINE at the east end is through a temporary turnout located a mile west of Atlantic. Old line (right) will be taken up.



BRIDGE NO. 4589 near Hancock Junction carries the new track over U.S. Highway No. 59 and over the Harlan-Carson branch line (where work train is pulling out).

bridges were being subjected to scour. Hence, the railroad would have been faced with a major bridge rehabilitation program if the old route had been retained.

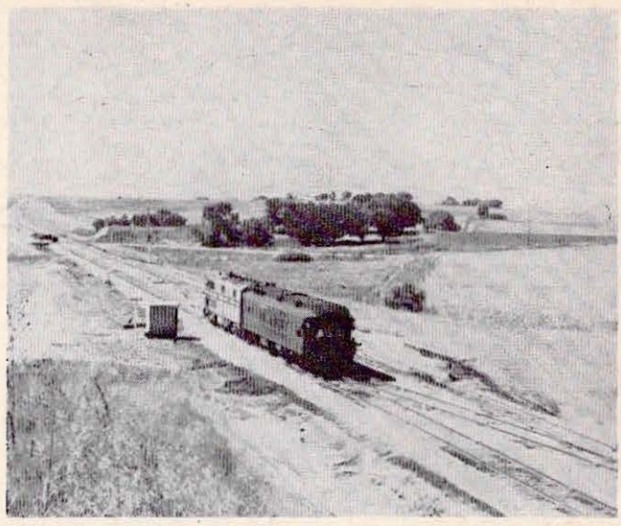
Quite a few preliminary surveys were made before the final route was selected. Unfortunately, no U.S. Geological Survey quadrangle maps were available to assist in this phase of the work except for the last few miles at the westerly end near Council Bluffs. However, copies of aerial photographs made for the Agricultural Adjustment Administration were available; on these preliminary lines could be penciled to develop the most desirable and economical route from the standpoint of grading and bridges, with the least curvature.

As finally established, the new route was projected 33.86 miles almost due west from Atlantic to the town of McClelland, on the CGW. This route crosses the Rock Island's Carson-Harlan branch just south of the town of Hancock. The route then utilizes 11.66 miles of CGW trackage and, by construction of a new track 0.81 miles long, enters the new East yard at Council Bluffs. It is planned to remove the old track from Atlantic to Walnut and from Shelby to Council Bluffs, and to serve the towns of Walnut and Shelby from the Carson-Harlan branch.

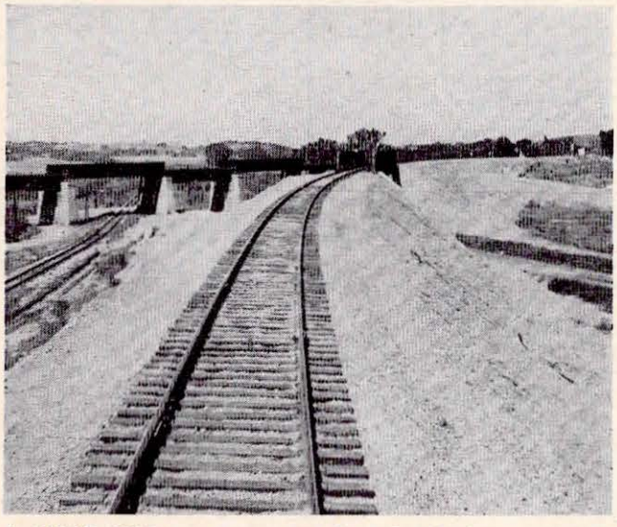
The project was divided into three residencies, with headquarters located at Atlantic, Hancock and Council Bluffs. The three resident engineers worked under direction of a construction engineer. To permit smooth coordination of activities of construction forces, it was essential that they have instant communication between them, and later with a construction roadmaster. This was provided by a radio system* consisting of transmitter-receiving base radio stations at Atlantic and Hancock, transmitter-receiving radios in the automobiles of these five men, and portable walkie-talkie radio sets for use by inspectors and survey parties. The residency at Council Bluffs was in a low spot and had intervening hills which prevented good reception, so a base radio station was

*For more complete details see "How Radio Aids Construction Forces" in the August 25, 1952, issue of *Railway Age*.

NEW CONNECTING TRACK at Hancock Junction from the road's Harlan-Carson branch line permitted some track material to be brought up by rail.



HILLIS PASSING TRACK is three miles long and has a pair of crossovers at its midpoint to permit two trains to occupy siding at one time.



A LONG FILL was constructed to build the connection from the CGW track to the Rock Island's new East yard at Council Bluffs.

not established at that point. The town of Hancock is also in a valley, so the base radio station was established on a hill one mile away and calls were handled by remote control by means of telephone wires.

Hence, radio was used in the same way telephones ordinarily would have been employed, and it provided constant contact for handling instructions between the office and the field and for getting information from the field. It is reported that the radio system saved a great deal of time and proved so valuable that the railroad wonders how it could have gotten along without it.

Construction work was begun October 15, 1951, and grading was progressed from four points. Cuts were excavated to a width of 34 ft. between the toes of the slopes. This width will permit use of tractors and scrapers for side-ditch maintenance. Slopes in cuts were made 1½ to 1. On fills the top of the roadbed was made 24 ft. wide and slopes 1½ to 1. In some of the deeper cuts and on the higher fills, benches, 10 ft. wide, were made on the slopes at 20-ft. intervals vertically. The upper 8 inches of the roadbed was formed of zinc refuse, over which 10 inches of gravel ballast was applied. Later, 4 inches of slag ballast will be applied and the gravel will then become sub-ballast.

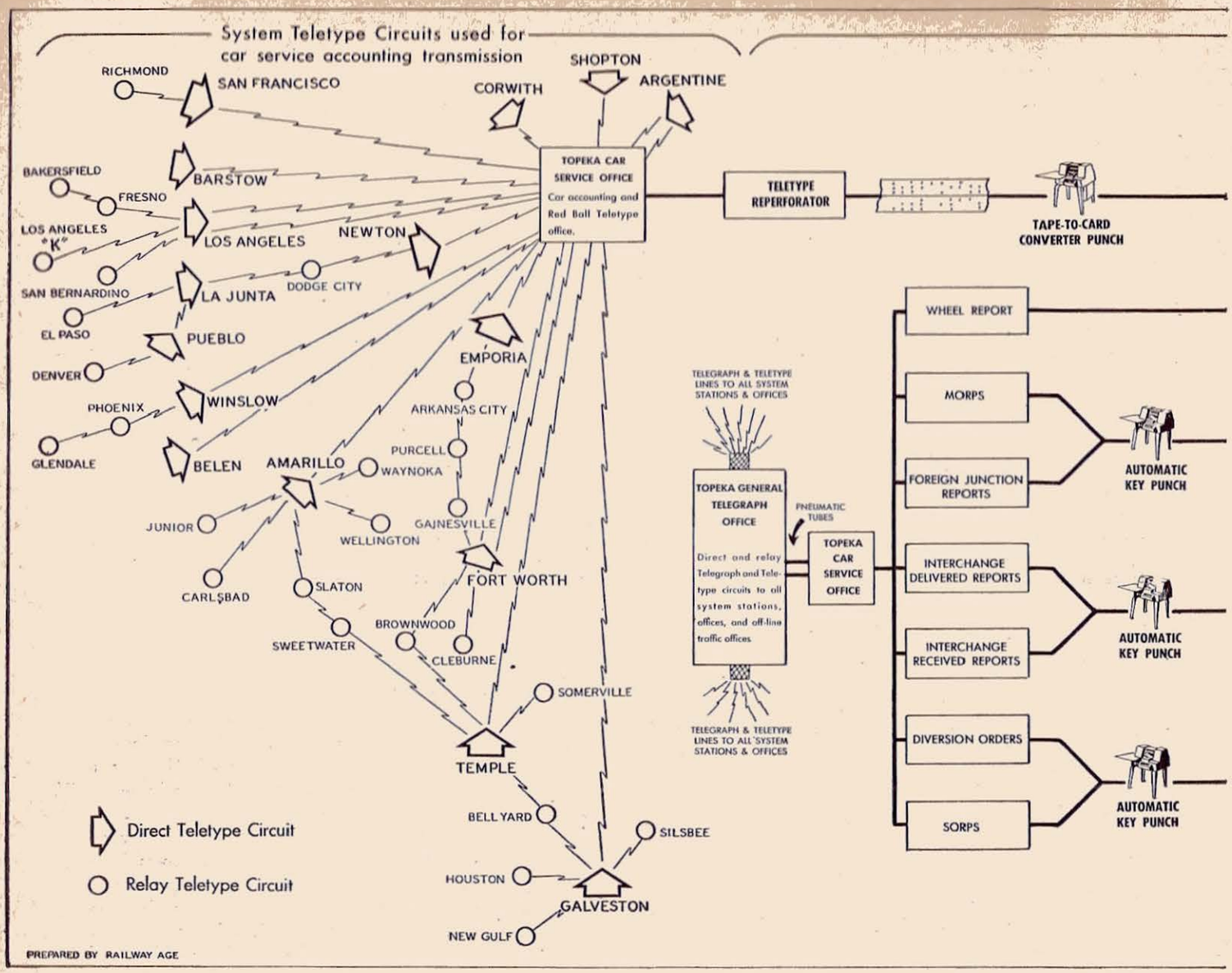
An 80-man gang laid 115-lb. rail on the new line at the rate of about one mile a day. The rail is laid on double-shoulder plates and is adequately anchored. No. 4 and No. 5 treated oak and gum crossties, 8 ft. 6 in. long, were used.

Unlike the old line, where washouts were not infrequent, the new route should not have any troubles from land drainage. It crosses streams almost at right angles and adequate waterways have been provided. Bridges on the old line were generally designed for Cooper's E-55 loading, whereas those on the new line are designed for E-72 loading, except for two bridges which are designed for E-60 loading. There were 19 steel bridges, 20 timber pile trestles, and numerous culverts and T-rail bridges on that part of the old line which is to be abandoned. On the new line there are only 15 steel bridges, 12 concrete culverts 10 ft. by 10 ft. and larger, and numerous corrugated metal pipe culverts.

The number of highway crossings also was reduced by construction of the new line. On the old line there was a total of 36 highway crossings, of which five were carried overhead across the track, three were in subways, and 28 were at grade. On the new line there are 31 crossings, of which 10 are carried by overpasses, five are in subways, and 16 are at grade.

Train operation on the new route is controlled by color-light signals of a C.T.C. system that utilizes the Union Switch & Signal 506 code system. The control machine is located at Council Bluffs. Only two passing tracks are provided; one, 6,750 ft. long, near the connection with the CGW at McClelland, and the other, three miles long, near Hancock. The three-mile long passing track, as well as the connections with the CGW, have No. 20 turnouts.

Completion of this project brings to fruition a recommendation made in 1857 by General Grenville M. Dodge that the original line be constructed over this route—a plan that was discarded only because of the expense and difficulties of construction of the early days.



ON THE SANTA FE . . .

Centralized Machine Car Accounting

New system, developed after extensive study, uses posted records to eliminate need for large-scale merging operations

An entirely new and original car accounting system is being placed in service this month by the Santa Fe. This new system is the culmination of over 12 years of constant study and research by the Santa Fe for a way to integrate fast reports of car movements—for use by the traffic and transportation departments—with a fully automatic system of car accounting.

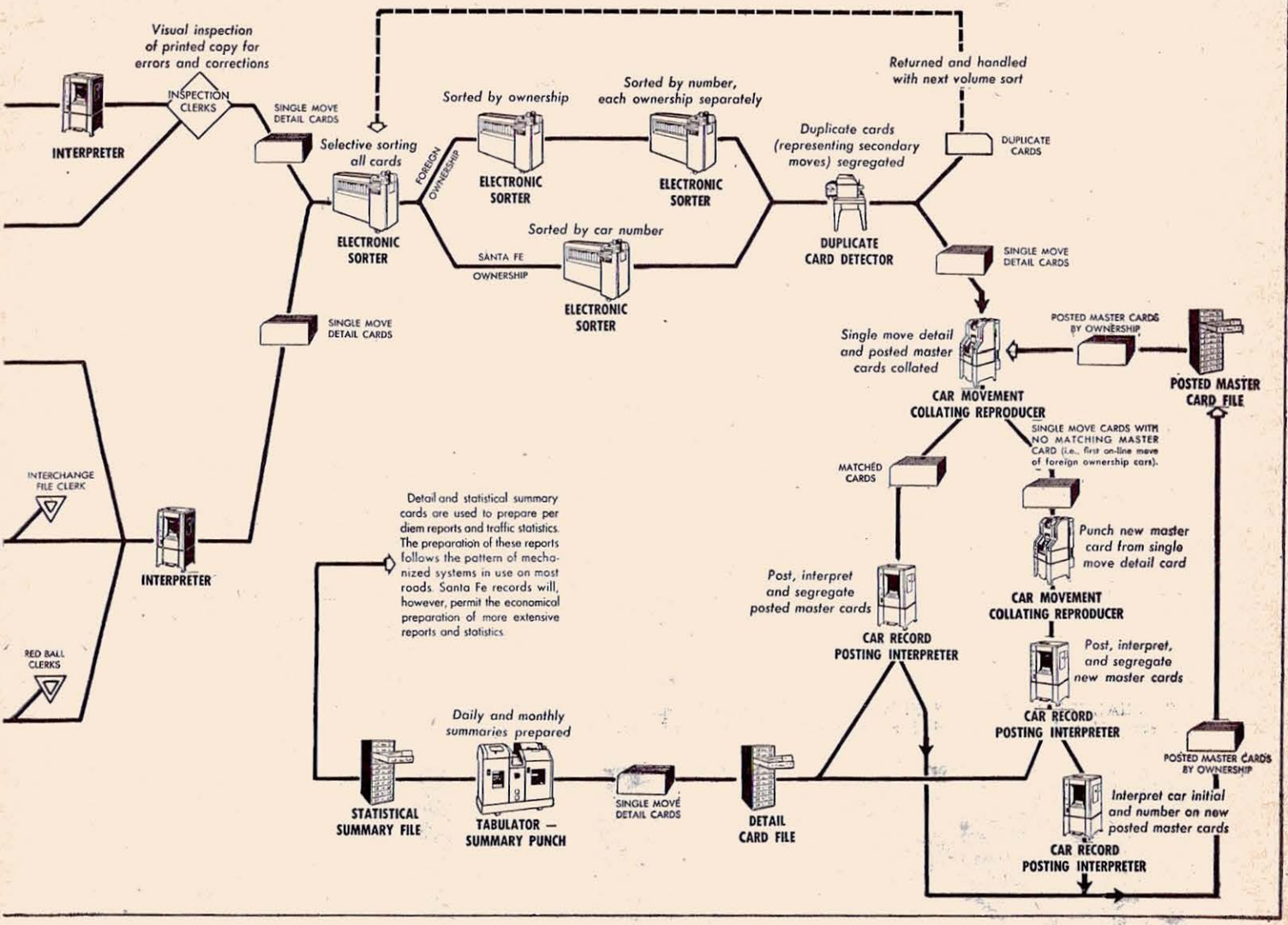
The improved reports of car movements which the new system makes available are of as great—or greater—significance and importance than the simple mechanization of car accounting procedures. The benefits which are being reaped by the traffic and transportation departments are described in separate, following articles.

Operation of this new car accounting system comes under jurisdiction of the transportation department.

New Machines

This new accounting system was made possible by the research activities of Remington Rand's business machines division, which, working with the Santa Fe, designed an entirely new car movement collating reproducer which eliminates all need for merging one day's movements with those of previous days in a month.

Car service accounting office work flow chart


Visual inspection of printed copy for errors and corrections
INTERPRETER
INSPECTION CLERKS
SINGLE MOVE DETAIL CARDS
Selective sorting all cards
ELECTRONIC SORTER
FOREIGN OWNERSHIP
Sorted by ownership
ELECTRONIC SORTER
Sorted by number, each ownership separately
ELECTRONIC SORTER
Returned and handled with next volume sort
Duplicate cards (representing secondary moves) segregated
DUPLICATE CARDS
DUPLICATE CARD DETECTOR
SINGLE MOVE DETAIL CARDS
Sorted by car number
SANTA FE OWNERSHIP
ELECTRONIC SORTER
SINGLE MOVE DETAIL CARDS
POSTED MASTER CARDS BY OWNERSHIP
POSTED MASTER CARD FILE
Single move detail and posted master cards collated
CAR MOVEMENT COLLATING REPRODUCER
SINGLE MOVE CARDS WITH NO MATCHING MASTER CARD (i.e., first on-line move of foreign ownership cars).
MATCHED CARDS
Punch new master card from single move detail card
CAR MOVEMENT COLLATING REPRODUCER
INTERCHANGE FILE CLERK
INTERPRETER
Detail and statistical summary cards are used to prepare per diem reports and traffic statistics. The preparation of these reports follows the pattern of mechanized systems in use on most roads. Santa Fe records will, however, permit the economical preparation of more extensive reports and statistics.
Post, interpret and segregate posted master cards
CAR RECORD POSTING INTERPRETER
Post, interpret, and segregate new master cards
CAR RECORD POSTING INTERPRETER
RED BALL CLERKS
Daily and monthly summaries prepared
STATISTICAL SUMMARY FILE
TABULATOR — SUMMARY PUNCH
SINGLE MOVE DETAIL CARDS
DETAIL CARD FILE
POSTED MASTER CARDS BY OWNERSHIP
Interpret car initial and number on new posted master cards
CAR RECORD POSTING INTERPRETER

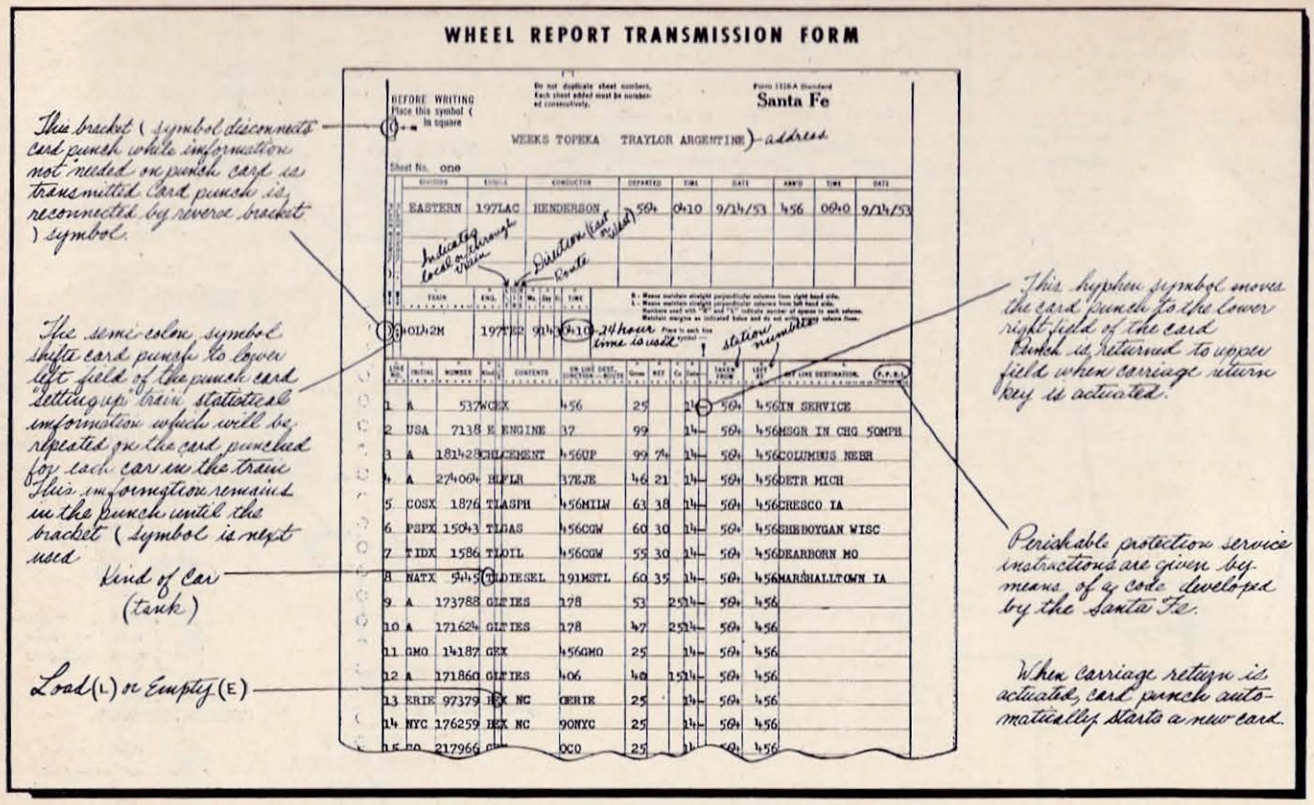
THIS IS HOW information on car movements is transmitted to the car service department in Topeka, and there converted to punch cards. Treatment of more conventional aspects of accounting procedures is not shown.

How an entire railroad can benefit from the bold thinking and planning, and the integrated efforts, of one small bureau, is illustrated by the Santa Fe's new car accounting system, which is the subject of four articles in this issue.

It is being given such extensive treatment because *Railway Age's* editorial staff considers it a prime example of how a seemingly obscure and minor operation can be developed to produce benefits of major importance to several different departments.

The way in which the Santa Fe car accounting system was developed, and the kind of thinking and planning which went into its creation, deserve study by every railroad man —even those not even remotely interested in accounting or accounting machines.

The material has been arranged in four separate articles which describe: (1) What the new car accounting system is and how it works; (2) how the new system will benefit the entire railroad; (3) how it is being used to improve the already-efficient and well-known Red Ball Information Service system of passing reports for shippers, and (4) how the system came to be.


WHEEL REPORT TRANSMISSION FORM
Santa Fe
WEEKS TOPEKA TRAYLOR ARGENTINE
address
Sheet No. one
EASTERN 197LAC HENDERSON 504 0410 9/14/53 456 0040 9/14/53
This bracket (symbol disconnects card punch while information not needed on punch card is transmitted. Card punch is reconnected by reverse bracket) symbol.
Indicating local or through train
Division (last visited)
Route
The semi-colon symbol shifts card punch to upper left field of the punch card "setting up" train statistical information which will be repeated on the card punched for each car in the train. This information remains in the punch until the bracket (symbol is next used
24 hour time is used
station number
This hyphen symbol moves the card punch to the lower right field of the card. Punch is returned to upper field when carriage return key is actuated.
Kind of car (tank)
Perishable protection service instructions are given by means of a code developed by the Santa Fe.
Load (L) or Empty (E)
When carriage return is actuated, card punch automatically starts a new card.

A SPECIAL TRANSMISSION FORM is used for wheel reports so information will be properly placed and spaced for automatic operation of card punches in Topeka.

THE NEW SYSTEM does more than simply mechanize car accounting procedures. It provides timely and detailed information on car movements not supplied by any other car accounting system.

Another important contribution resulted from joint efforts of the Teletype Corporation and Remington Rand in producing an electronic converter which would enable standard Teletype punched tapes to actuate a Remington Rand card punch.

The Santa Fe held off full mechanization of its car accounting functions until a system could be devised which could be closely integrated with its existing "Red Ball Information Service," and its existing system of telegraphic car reports. The per diem, car miles, and traffic statistics portion of the car accounting department's operation were mechanized in 1929. However, the old machines used for this operation have been discarded and the operations integrated into the new set-up.

New Approach Needed

Although the general plan had been growing for many years, serious research on how to achieve mechanization got underway in 1947. It began with an intensive two-year study of all available mechanical car accounting systems, including those in use on other railroads. None of the available systems, though sound in accounting principles, were sufficiently flexible to meet the Santa Fe's requiremnts. With 13,094 miles of railroad operated, and over 67,000 car moves daily, it was deemed impractical and not economical to install punch cards in all terminals, as some railroads have done, with progressive reporting from one terminal to the next. Many Santa Fe terminals do not have sufficient volume to warrant the cost of punch card installations, but under the system of progressing cards such installations would be imperative to make the system operative.

It also became apparent that the common railroad accounting procedure of merging the cards for one day's operation with the previous day's movements would not be practical on the Santa Fe. Such a merging operation, involving 67,000 daily moves, would, on the last day of the month, necessitate merging 67,000 cards with 1,800,000 previous movement cards. This made it apparent that some way would have to be found to by-pass this operation.

Car Record Posting Interpreter

To meet this requirement, Remington Rand developed a car record posting interpreter (model 312-4) which automatically posts daily movements on a master card record. Each master card can hold up to 24 different moves. This machine eliminates the necessity for all merging operations, since cards can be posted throughout the day at a rate of 3,000 per hour per machine. This machine fulfills another Santa Fe need—complete accessibility of the record at all times.

One of the goals sought in planning this new accounting system was the complete elimination of duplication of effort, both within the same department, and between departments. The wheel report was selected as the basic source of information for several reasons: (1) it already contained most of the material needed for accounting use; (2) it was already in system-wide use; (3) it was already being transmitted by Teletype from a majority of key stations and terminals to Topeka and Chicago, and (4) it was already the basic source of data for the Red Ball Information Service—an operation conducted in conjunction with the car accounting bureau.

The Wheel Report

Key document in the new accounting system is the Teletyped wheel report. Direct circuits carry these wheel reports into the machine room of the car accounting department in Topeka, where they are received on conventional Teletype reperforators and converted into punched tapes. The tape then moves directly to the Remington Rand tape-to-card converter punch. By a system of code signals, operation of the punch is cut out when general information—such as the train crew, reporting operator, etc.—is transmitted. A similar code "sets" key information—train number, reporting station, date and time—in the punch, where it is retained until cards have been punched for each car on the wheel report. Each line on the wheel report is reproduced on a separate card—resulting in a card for each car listed on the report, containing all needed data. Thus the Teletype operator who types the original wheel report—maybe 1,000 miles from Topeka—actuates the car accounting punches, eliminating the need for manual punching of this information.

Through a system of repeat circuits, the same wheel reports appear in telegraph offices throughout the Santa Fe system for use as advance switching lists, tonnage reports, locomotive assignments, assignment of yard crews, etc.

Extensive experimentation in 1950 and 1951 led to the design of the wheel report now used. The new form was put into system-wide use in the fall of 1951. That gave two years for all employees to become accustomed to it, and to iron out any "bugs" that developed. (An earlier version of the wheel report during its developmental stages was illustrated in *Railway Age*, June 4, 1951, page 42.)

The wheel report has its limitations, however, in that it is prepared only at larger points with sufficient volume to justify the installation. It was necessary to devise a method of providing fill-in information—cars set out and picked up at intermediate points, train arrivals and departures, etc. After extensive field research, a group of telegraphic reports were designed to provide all information not included on the wheel reports. In many cases these new forms have replaced older forms and reports. In every case, duplication of effort is carefully avoided. Each form is designed to fill the needs of *every* office or department concerned. Thus the introduction of the new system did not impose additional burdens on local yard and agents' offices over the system. On the contrary, the new plan actually *reduced* the amount of clerical time required for preparing reports at many of the larger stations.

Code Names

Each of the new forms is given a code name—a standard Santa Fe practice—to facilitate telegraphic transmission. The new forms, with their code names, are:

FORP: A report of all revenue cars forwarded, prepared only by the agent at the point of origin. Contains all essential data on the waybill.

TAD: Report of train arrivals and departures. May also be used to list cars added to or dropped from through trains, when not enough to justify preparation of a new wheel report.

MORP: A simplified wheel report for use at stations which do not regularly prepare Teletyped wheel reports.

SORP: A report of revenue cars set out bad order.

ICR: Report of interchange cars received from connecting lines.

ICD: Report of interchange cars delivered to connecting lines.

Accounting Processes

Although every agent is supplied with printed forms to be filled in for use by the telegraph operator, their use is not mandatory. Every agent or operator has the option of transmitting the required data without first filling in the form. However, the transmitted data must be in the order and form prescribed.

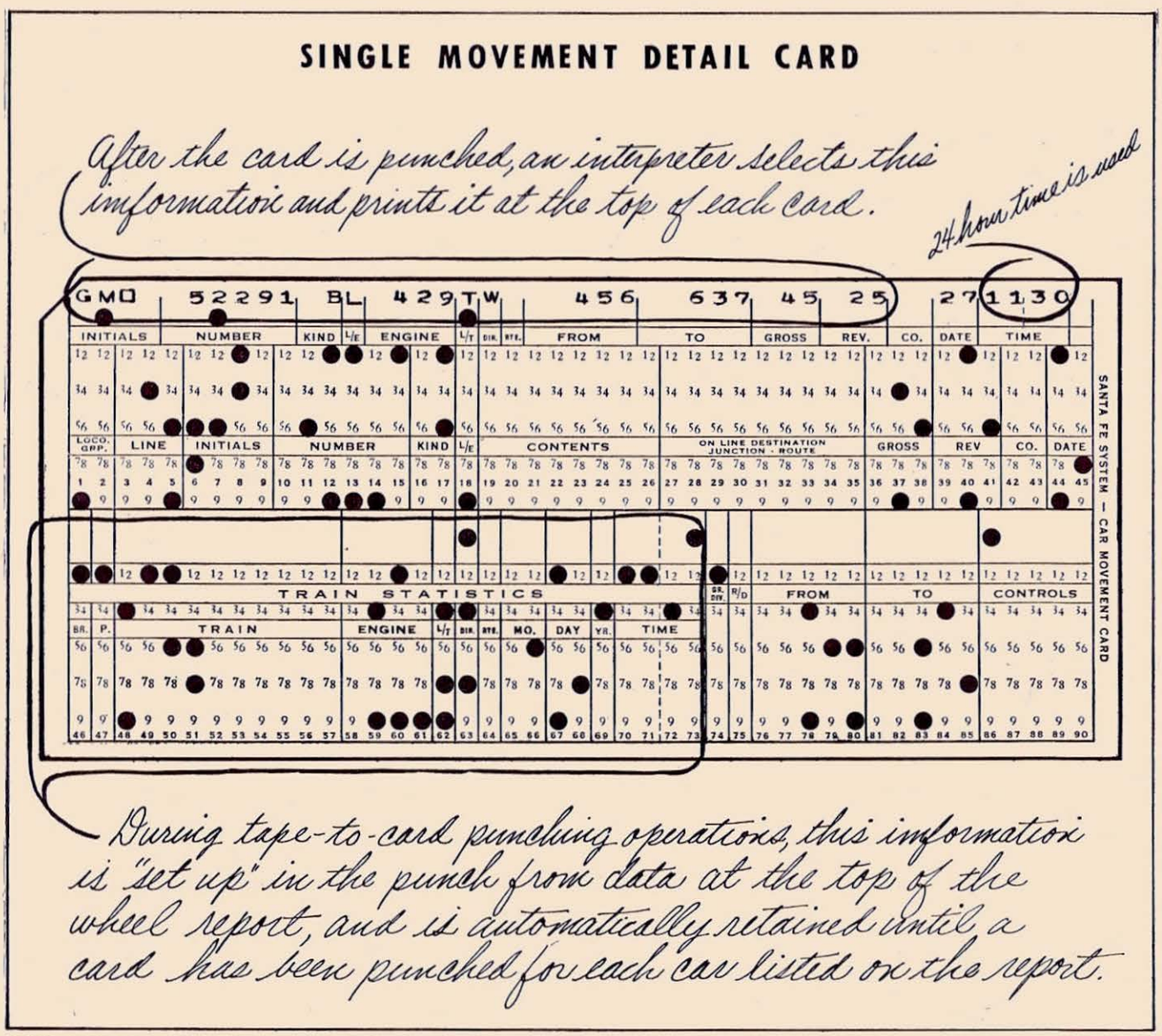
The steps which are followed in processing the punched cards are shown on the diagram on pages 62 and 63. Once the posted master cards are prepared, and the single move detail cards properly filed, the procedures used for per diem, car mileage, train statistics, and private line mileage settlements are essentially the same as used by most railroads having mechanized car accounting set-ups.

Matching System

The system is also used to match interchange cars received and interchange cars delivered, using the new car movement collating reproducer. This matches receipts with deliveries, and rejects all unmatched cards, which are then run through a tabulator and sent to the car record clerks for inspection, correction and—if necessary—tracing. Corrected cards are then repunched and handled in the normal manner.

The Santa Fe decided in favor of this installation for two primary reasons: (1) Remington Rand assisted in the creation of a system tailored to meet the Santa Fe's

SINGLE MOVEMENT DETAIL CARD



THIS DETAIL CARD is automatically punched from the incoming Teletype wheel report, and provides the basic data used for the car accounting and reporting processes.

special needs, and (2) Remington Rand machines may be purchased, or leased. The Santa Fe elected to purchase most of the machines required for its car accounting installation. The machines used are:

11	model 306-2	Alphabetic key punches
19	model 308-5	Tape-to-card converter punches
25	model 420	Electronic sorters
20	model 315-1	Car movement collating reproducers
18	model 312-4	Car record posting interpreters equipped with automatic line finders
10	model 3100	Tabulators
7	model 311-4	Summary punches
4	model 325	Duplicate card detectors
4		Sorters equipped with selective sorting devices.

THE PERFECTION OF TWO NEW MACHINES by Remington Rand made the Santa Fe's new car accounting system possible. This picture of the machine room in Topeka, showing the new car record posting interpreters and car movement collating reproducers, was taken during the training period prior to regular operations.

SANTA FE CAR ACCOUNTING . . .

Finger-Tip Control of Freight

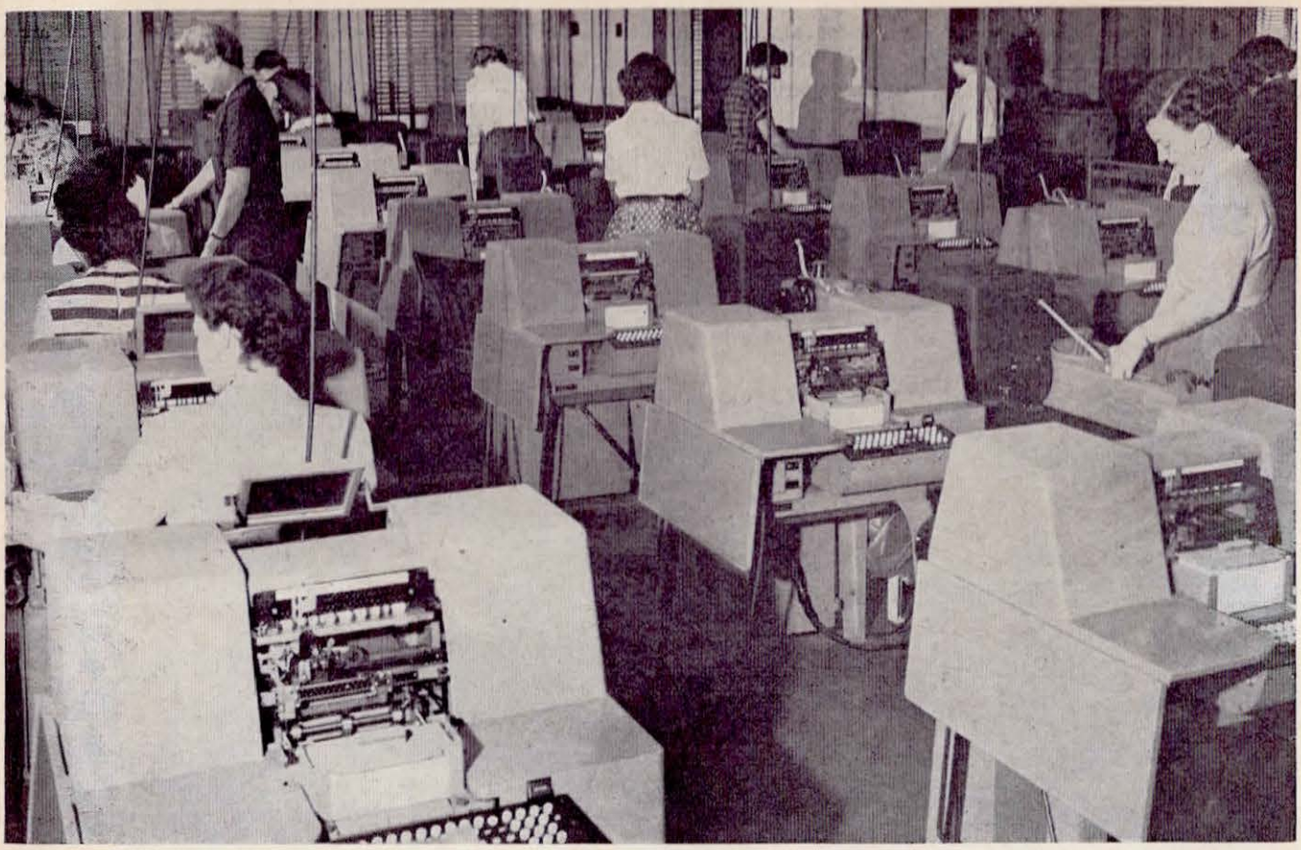
Both traffic and transportation departments benefit from original features in new car accounting system

The effects and benefits of the Santa Fe's new car accounting system are expected to reach far beyond the usual sphere of the car accountant. As this new system gets shaken into a steady routine, it will result in an improved Red Ball Information Service, in addition to providing better regular operating statistics.

Three unusual and original features of the system are: (1) incoming Teletype wheel reports are converted to punch cards automatically, (2) a "master card" is kept for every car, system and foreign, which has moved on the system during the month, and every reported movement made by that car is automatically posted, and (3) a complete record of all car movements, filed by car initial and number, will be available in the car service office at Topeka within an average of four hours of the time movement is reported.

Another goal achieved by this new accounting system is the complete elimination of duplication of effort. Thus, the single teletyped wheel report, in addition to supplying all data needed for car accounting procedures, is used by the transportation department, by yard offices as advance switch lists, and as the basic source of information for the Red Ball Information Service supplied to shippers and receivers of freight by the traffic department. Several new telegraph forms were designed to provide information not included on the wheel report, or for the use of stations not using wheel reports. In every case, introduction of these new forms permitted discontinuance of one or more old forms, with the end result that the new system actually requires less time and work in yard, station and telegraph offices.

Teletype and telegraph are used exclusively for gather-



THE NEW SYSTEM WORKS FAST. Incoming Teletyped wheel reports are automatically converted to punch cards on these machines in the Topeka office.

ing *all* data and information. As a result, the car service office in Topeka gets its basic information fast and can keep records of car movement and availability which are really current. The mailing of forms has been completely discontinued—except for the file wheel reports required by the Interstate Commerce Commission.

Extensive communication facilities are essential for operation of this new reporting and accounting system. Because the plan has been over 20 years in the making, and various phases of it have been in operation for five or more years, it was not necessary to install all the required communications facilities at once—they grew with the plan, except on the lines of the Gulf, Colorado & Santa Fe. Here, a major communications rebuilding project was delayed until the needs of this new plan became known.

An extensive month-long field test was held in January 1951 to determine the workability of the new plan, and to ascertain the communications facilities required. When completed this fall, there will be 29,500 miles of physical and carrier Teletype circuits used for transmitting wheel reports. In 1950, there were 10,360 miles of circuits in use for the same purpose. All told, the following machines were added:

92 Teletype printers;
102 Teletype reperforators;
78 Teletype transmitter-distributors; and
35 New telegraph carrier channels.

The principal considerations in establishing the new reporting and accounting system have been: (1) improvement in service to shippers, (2) improved, simplified and expedited "paper work," (3) reduced per diem payments, and (4) improved car service records.

The car service department is not anticipating any real measure of efficiency until the system has been thoroughly shaken into a practiced routine—probably several months. It is expected that material savings will be realized in reduced per diem payments resulting from the improved car utilization which is expected to follow introduction of this new system.

Principal Benefits

The new accounting system will bring important improvements to the Red Ball Information Service, as described in the following article.

The transportation department stands to benefit greatly from the new installations by way of the complete, fast information on cars and car movements which it will make quickly and conveniently available. It will undoubtedly bring to light places and means whereby car utilization can be improved, and it may even suggest some changes in operating practices which will produce still further improvement. This will have the two-fold effect of reducing per diem payments and giving a better car supply.

The movement of empty cars—particularly those which are in short supply or for which there is insistent demand—can be easily checked and expedited using information supplied by the new system.

Another benefit will be the availability of current and complete information concerning the location of all

different kinds of equipment, empty and loaded. Working from the last move record cards, it will be a simple matter to determine how many cars of a certain type are on the railroad, where they are located, and whether loaded or empty. This will greatly speed and expedite the general distribution of different types of equipment for filling shippers' orders.

Faster Diversions

The Santa Fe does not look upon the present system as "the final answer," but rather as a foundation upon which still further improvements can be built. It is recognized that many possibilities exist which have hardly been explored.

For example, by routing all diversion and reconsignment orders through the car service office, each car can be located *before* the order is sent out. The diversion request could then be sent to the station or terminal where the car will stop next—eliminating the need for the present system of "blanketing" sections of the railroad. This would reduce yard office work by giving each office only the orders for cars actually in its immediate vicinity.

The transportation department believes that car records produced by the new system may permit desired refinements in operating statistics which will provide a new yardstick for measuring overall operating efficiency.

These are but possibilities, not in actual operation today, but illustrative of the kind of service and operating improvements which might arise from the new system at some future date.

SANTA FE CAR ACCOUNTING . . .

For Speed and Service, It's Tops

Improved Santa Fe Red Ball Information Service and a new mechanized car accounting system being combined to give shippers fast reports on *all* carload shipments

In recent years the Santa Fe has not waited for shippers or receivers of freight routed via its line to call up and ask "Where is my car of freight?" It has made a practice of telling them before they had time to ask (*Railway Age*, June 4, 1951, page 41). But, good as this Red Ball Information Service was, it had some limitations; the traffic department wanted something better.

As a result of the new mechanized system of car accounting described in preceding articles, the Red Ball Information Service—already well known among shippers as a comprehensive, fast car movement reporting service—is in the process of being further improved, and its coverage extended.

Complete Coverage

Soon *every* freight car* moving on the Santa Fe will be covered; no kinds of traffic will be omitted. And the service will be extended to cover parts of the railroad not previously included.

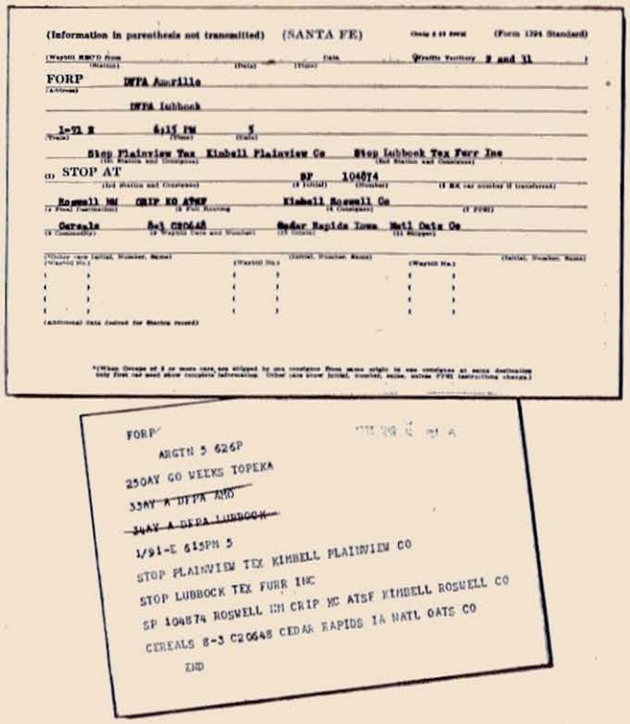
Coverage of the entire Santa Fe system will be complete, up to the most remote branch line and siding. There will be no "blind spots."

Of particular interest to many shippers, the system will provide for policing the movement of *all* empty cars. This will permit furnishing prompt empty movement records upon request. And it will assist in spotting and moving empties to the places they are needed most.

*Except freight cars moving locally within one division. Information on such shipments will be available on request.

At the core of the information service are the reports Teletyped to 64 out of the Santa Fe's 65 district traffic offices. (Mexico City is the only office not connected to

THIS POSTED MASTER RECORD FILE is a major achievement of the new car accounting system. It contains information on movement of every car on the Santa Fe system within an average of four hours after the actual movement.


(Information in parenthesis not transmitted) (SANTA FE)
FORP
DFPA Amarillo
DFPA Lubbock
1-91 E 4:15 PM 5
Stop Plainview Tex Kimbell Plainview Co Stop Lubbock Tex Furr Inc
STOP AT
SP 104874
Roswell NM CRIP KO ATSF Kimbell Roswell Co
Cereals 8-3 C20648 Cedar Rapids Iowa Natl Oats Co
FORP
ARGTH 5 626P
25OAV GO WEEKS TOPEKA
35AV A DFPA AMO
34AV A DFPA LUBBOCK
1/91-E 615PM 5
STOP PLAINVIEW TEX KIMBELL PLAINVIEW CO
STOP LUBBOCK TEX FURR INC
SP 104874 ROSWELL NM CRIP NC ATSF KIMBELL ROSWELL CO
CEREALS 8-3 C20648 CEDAR RAPIDS IA NATL OATS CO
END

FAST TELETYPE TRANSMISSION of all information is the secret of the Red Ball Information Service. This sample FORP form illustrates how information is prepared for transmission to Topeka (top), and how it looks upon receipt (bottom). Information such as this is manually punched on the cards.

the Teletype circuit.) These messages are transmitted from the Topeka car service office, which is open and operating 24 hours a day, seven days a week.

Information on every car movement is automatically Teletyped or telegraphed to Topeka. Reports on all loaded cars are separated according to destination, and further classified by traffic districts. Reports covering movements received for each district are assembled immediately and Teletyped directly to the district traffic office. Reports are not allowed to accumulate more than an hour.

As a result, reports usually reach even the most remote district traffic office within a few hours of the time the car actually moved.

24-Hour Teletype Service

The district traffic office Teletype machines are in service 24 hours a day. Reports come in continuously, whether the office is open or closed. Each office notifies interested consignees as reports come in.

On the assumption that the receiver, or consignee, is more interested in the car's movement than the shipper, the service is normally limited to consignees. Thus the Red Ball Information Service is supplied automatically, without special request, for all consignees of carload "Red Ball" freight, empty tanks, and special type cars moving on or via the Santa Fe.

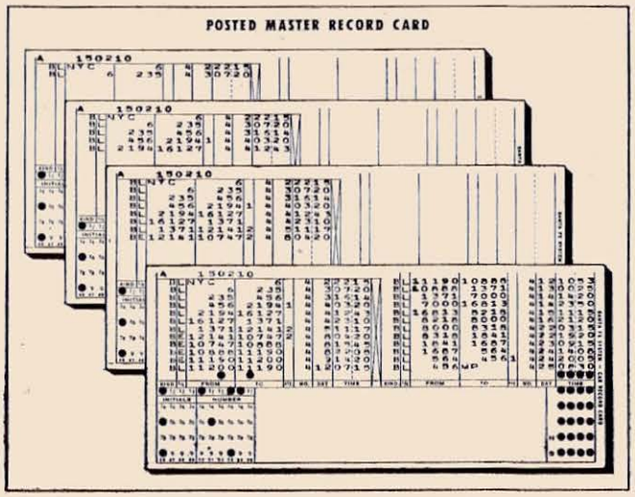
The automatic "positive" nature of this service forestalls a substantial number of tracer requests. Those which do come in can often be answered from information on hand in the district traffic office. The unusual request which cannot be handled locally will be referred to Topeka by telegraph or Teletype for tracing through the new "master card" file.

The new mechanized car accounting system will have as one of its features a "master card" file containing a separate "master car record card" for every car, loaded or empty, moved on the entire Santa Fe system during the current month. These cards will be filed by car initial and number in the service department in Topeka. Each "master card" will have noted on it the last recorded move made by that car, including the points between which the car moved, and the date, hour and minute of the move. It is expected this master card will be kept posted on all moves within *an average of four hours of the time the move actually occurred.* The bureau will function seven days a week, 24 hours a day, so records will be kept current at all times. Files for previous months will be readily available.

Obviously this will greatly simplify tracing. By going to the "master card" file, it will be possible to get complete up-to-the-minute reports on *any* car. In fact, the car service department expects to be able to answer telephone tracer requests within one or two minutes. The only possible hitch is that the card in question might be "working" in the machines at the time a request is received, making it necessary to wait an hour or so until it has completed the processing routine and been returned to the file.

Bad Order Set-Outs

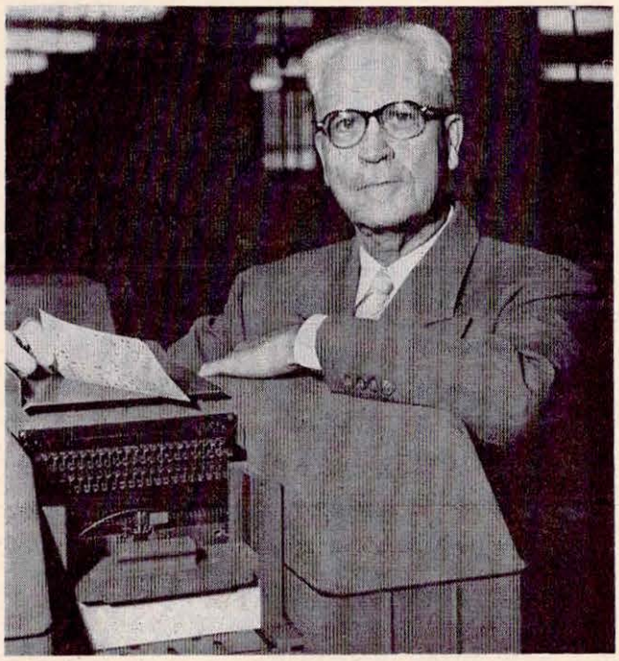
An interesting feature of the Red Ball Information Service is the treatment accorded bad-order cars. Although the basic system which has been in effect heretofore is not being changed, it is being improved to produce faster, more reliable reports. When a car is set out bad-order, information on the set-out is automatically transmitted to the Topeka car service office, the system control center, by the local agent (if set out at a terminal or agency station) or by the agent at the next terminal. Information is then relayed to the traffic office nearest the car's point of destination, for prompt transmission to the consignee.



A COMPLETE RECORD of every car's whereabouts appears on the master record card. This illustrates how a card for a single car (ATSF box 150210) is posted as the car moves about the system. The punch holes in the lower right corner tell the interpreter where to print the next line.

At the same time, there is set in motion an automatic "police action" on all delayed cars. Standing system-wide instructions are that all delayed cars must be returned to service within 24 hours, or a report rendered explaining "why not." plus an estimate of the further delay involved. When bad orders have not been returned to movement within the prescribed time, or an explanation and estimate of the further delay offered, the car service office immediately starts checking into the situation and endeavors to secure movement.

And as soon as a bad order car is returned to movement, the time, train and station where it resumed its journey is Teletyped to the traffic office concerned, for transmission to the consignee. With the new car accounting system in operation, this policing of bad order cars will be simplified and expedited.



ROY WEEKS and one of the new machines which made his car accounting system possible.

Santa Fe Car Accounting . . .

AN IDEA THAT GREW

The Santa Fe's new car accounting system can hardly be said to be the idea of any single man. But everyone on the road knows that its existence is the direct result of the interest, perseverence and efforts of Roy H. Weeks, superintendent of car service at Topeka.

For years, Mr. Weeks has had an all-consuming interest in developing car accounting as a tool for use by other departments, and for integrating the functions of his department with those of others so as to eliminate all possible duplication of effort. Because of his years of endless traveling over the railroad—into the farthest, most remote corners—in search of information and suggestions, he is well-known over the entire Santa Fe system. He talked to trainmasters, superintendents, agents, yardmasters, traffic representatives—anybody who had any contact with the operations of his department, or who could offer constructive suggestions. In this way he learned the uses which might be made of car accounting and of the statistics and information which it might make available for use by others. He gleaned many ideas which were eventually worked into practice.

Old-timers on the Santa Fe recall that Mr. Weeks' travels and inquiring mind were a major influence in the growth and development of the Red Ball Information Service.

Although he has spent his entire life in car accounting, he has often remarked "Accounting can be pretty dull—if it wasn't for these larger interests, I don't know how I could have stood my job."

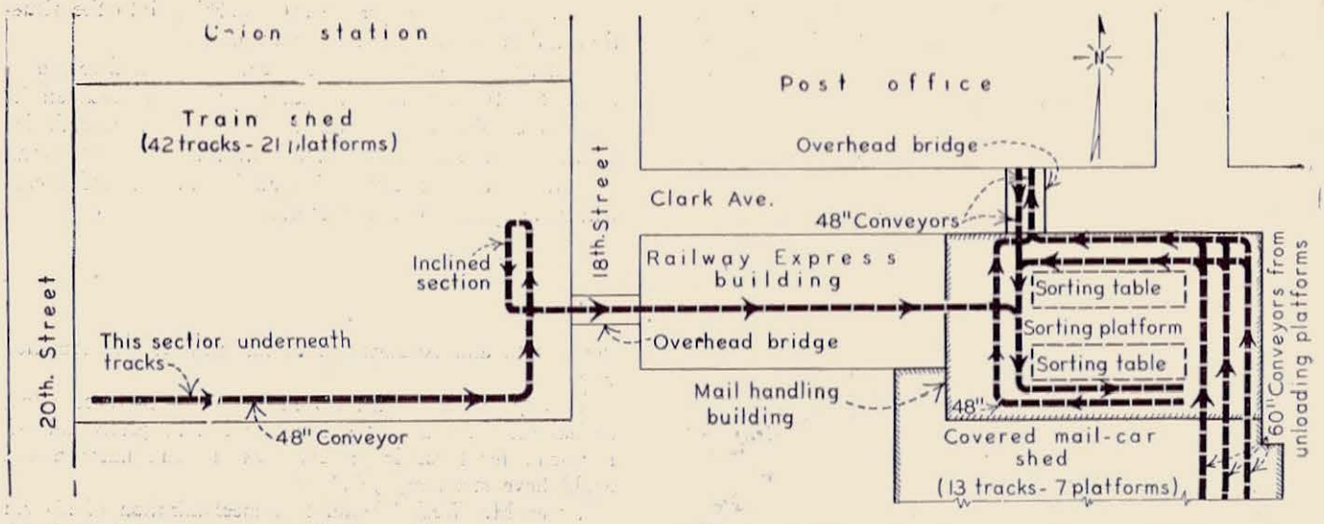
It was Mr. Weeks' belief that mechanization of his car accounting procedures should be accomplished in a way that would forge it into a useful tool for the benefit of both the transportation and traffic departments. He successfully resisted haphazard mechanization; he wanted to wait until he could perfect a system which would meet this minimum goal. Between 1947 and 1951, Mr. Weeks covered the country, examining every system of car accounting then in use or planned on different railroads. He assembled masses of data, many ideas, and the firm conviction that his goal could be achieved if some way could be found to "by-pass" one stubbornly-enduring conventional machine accounting practice—namely, that of merging the cards representing each day's movements with those of the previous days in the month.

During all of this time, accounting machine salesmen were on his doorstep. He heard them carefully, but they all wanted to swing *his* plans around to fit *their* available machines. One day George Stufflebeam, sales manager of Remington Rand's transportation records department, came to Topeka to help his local salespeople sell their system to the Santa Fe. Mr. Stufflebeam recalls that he walked into Mr. Weeks' office, all primed to use his most persuasive sales arguments. Mr. Weeks steered the conversation into a discussion of his plans, ending by pointing out the need for machines which would permit the creation of accounting systems tailored to the individual needs of each different railroad. Remington Rand didn't have such machines; it stayed away from the door until it had.

"Mr. Weeks gave us the inspiration, and threw us the challenge," Mr. Stufflebeam says. "We felt we had to produce." Two years later, Remington Rand was able to invite Mr. Weeks to a demonstration of the machines he inspired—which opened the door to the new Santa Fe car accounting system. Thanks to Roy Weeks' creative interest, George Stufflebeam's vision, and Remington Rand's research and engineering facilities, these machines were so designed as to be adaptable to the needs and interests of other railroads, large and small.

Mr. Weeks retired October 1, at the age of 70, after having completed 43 years of service on the Santa Fe, and over 50 years of railroad service—all in car accounting.

His first railroad job was in the car accountant's office of the Missouri-Kansas-Texas. On the Santa Fe he learned accounting under the late J. W. Nowers, nationally recognized as a leading authority on car accounting, and the author of many of the car service and accounting rules in use today. Mr. Nowers was a stern taskmaster who saw to it that his chief clerk, Roy Weeks, learned his job, and learned it well.



CONVEYORS from station train shed, from the new mail-car shed and from the post office deliver mail to the primary sorting tables in the new mail-handling building, as shown by this schematic diagram of the new facilities. Note also that mail is delivered direct from the new building to the post office by conveyor. Not shown is the complicated system of conveyors which deliver mail from the primary sorting platform to the secondary sorting docks on the first floor of the new mail-handling building and the Railway Express building.

FOR ST. LOUIS UNION STATION . . .

Mechanized Mail Handling

New facilities, built at a cost of $4,200,000, have

- Motor-driven conveyors totaling 1 1/4 miles in length
- Inclined primary sorting tables 110 ft. long
- Seven saw-tooth secondary sorting docks
- Thirteen-track mail-car shed covering 1.2 acres

The handling of mail at the St. Louis Union Station—one of the largest and toughest mail-handling jobs in the country—is now being performed faster and much more economically following completion of a modernization and mechanization program which cost a total of $4,200,000. The end result, in addition to greater speed and efficiency, has been largely to remove the operations of loading and unloading mail from the station train shed, where they were long a source of congestion and confusion on station platforms, and to concentrate them in a separate new facility embracing primary and secondary sorting facilities and a new covered shed for mail cars, all served by a comprehensive system of motor-driven belt conveyors totaling nearly 1¼ miles in length.

Mountains of Mail

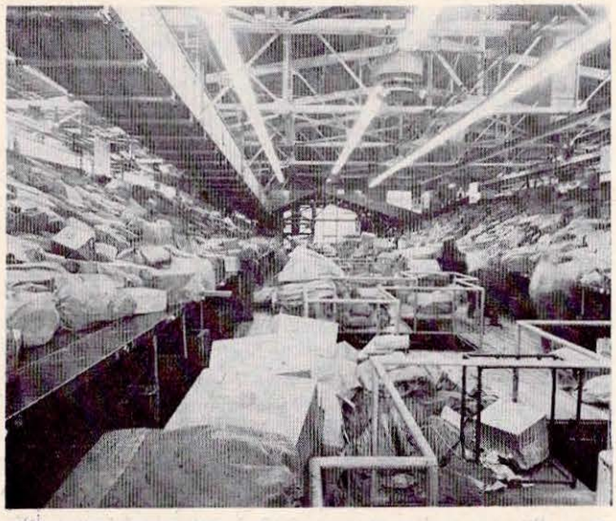
Approximately 952,000 sacks of mail move through the St. Louis Union Station each week. On a daily basis this is 136,000 sacks, or approximately 140 carloads. The bulk of this mail consists of parcel post which arrives at and leaves from the terminal in storage mail cars. A lesser amount of parcel post is handled in mixed traffic cars, along with express and baggage, and in Railway Post Office cars, along with mail of the "preferential" type—first-class and special delivery letters and newspapers and news magazines such as *Railway Age.*

Until the new facilities were completed, the work of loading and unloading mail cars was done almost entirely in the train shed, which has 42 tracks and 21 platforms. Four tracks at the east end of the train shed were set aside for the loading and unloading of mail storage cars, but the handling of mail to and from mixed traffic cars and R.P.O. cars was an operation that necessarily had to be carried on at any and all tracks throughout the train shed. Separation of mail was carried out in a small building located between tracks at the center of the outer end of the train shed, at doors of mail cars while being unloaded from trains along the platforms, and at several points in a subway underneath the outer end of the shed.

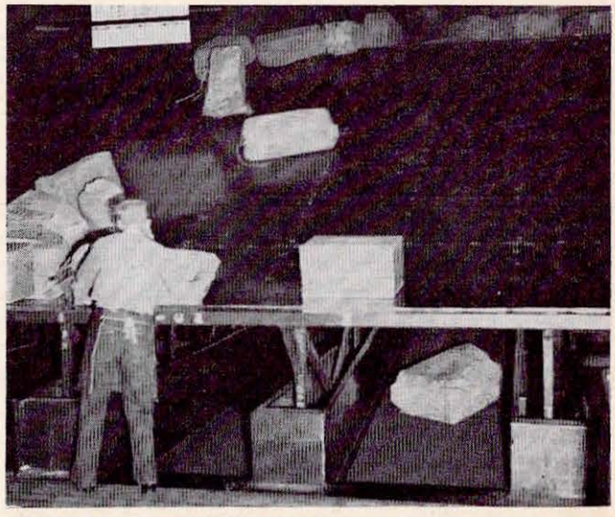
At the outer end of each platform in the train shed

HATCHWAYS in platforms of station train shed permit mail to be dropped through chutes to conveyor suspended from ceiling of subway.

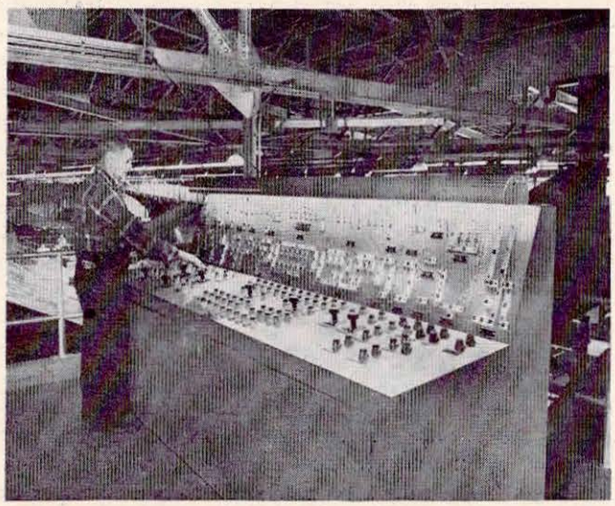
UNLOADING PLATFORMS in new mail-car shed have hatchways leading to conveyors that deliver mail to primary sorting facilities in new mail-handling building.



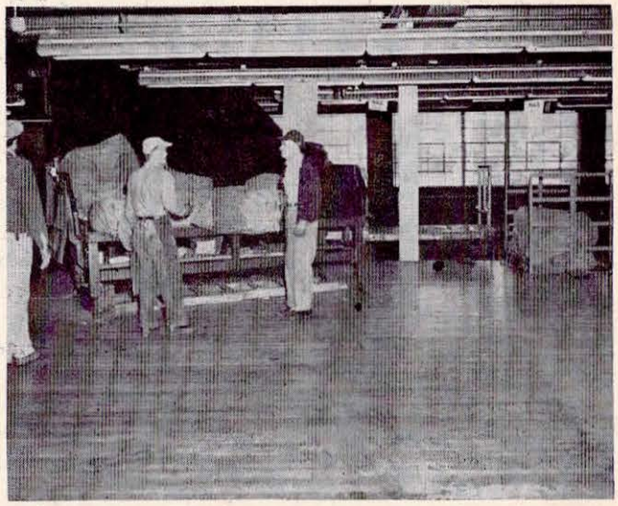
PRIMARY SORTING tables and platforms in new mail-handling building. Men on platform remove parcels and sacks from tables and drop them through chutes leading to secondary sorting docks below or to post office.



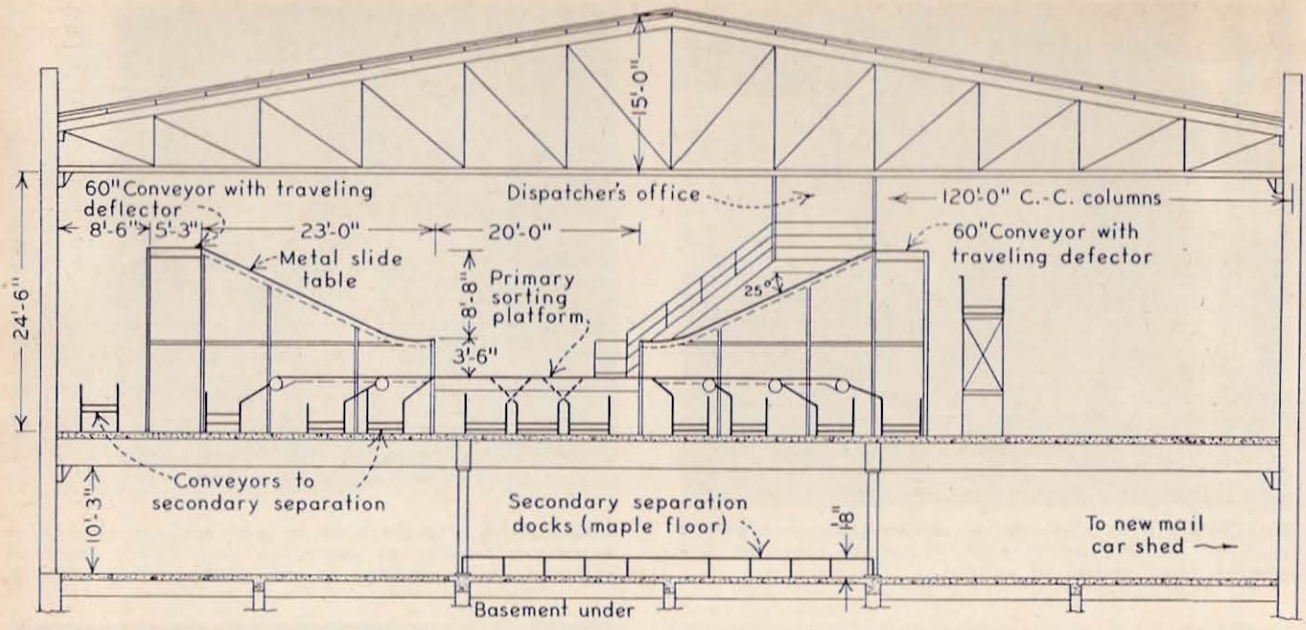
TRAVELING DEFLECTOR at top of each inclined table plows mail from conveyor belt onto table. Deflectors are adjustable as to the travel distance along the 110-ft. tables, depending on volume of mail being handled.



FROM CONTROL PANEL overlooking primary sorting room the "dispatcher" controls movements of all conveyors. An inter-communication system, centering at the control panel, embraces 58 talk-back speakers.



SECONDARY sorting docks, of which there are seven, are located on first floor of new mail-handling building and the adjoining Railway Express building. Mail is received by chute at each dock.



CROSS-SECTION through the new mail-handling building shows the inclined metal slide tables and the chutes leading to conveyors that take the mail to the secondary sorting docks.

there are two elevators operating between the platform level and the subway underneath the tracks. From the subway a tunnel extends to the basement of the St. Louis post office, which is located east of the station, on the other side of Eighteenth street, and north of Clark avenue. Thus, an underground route was provided by which mail inbound or outbound from St. Louis could be handled between the train shed and the post office. In addition to the elevators, the train-shed platforms and the subway levels are connected by a ramp.

The Old System

Under the old system all transportation of mail within the terminal— whether it was being transferred between cars, or to and from the mail shed, or to and from the St. Louis post office—had to be handled by tractor-drawn platform trucks. The result was inefficiency in the mail-handling operation and congestion on the train-shed platforms, the latter situation being a constant source of interference and annoyance to passengers moving to and from trains. Both inefficiency and congestion increased with the growth that occurred in the volume of mail being handled. For instance, whereas the number of mail-feet handled increased 140 per cent from 1939 to 1950, the number of man-hours required to handle mail at the terminal went up 197 per cent, and the labor cost shot up 672 per cent. The labor-cost increase therefore was 3.4 times greater than the increase in man-hours and 4.8 times greater than the increase in volume of mail handled.

The objectives of the new facilities are (1) to remove the loading and unloading of mail storage cars from the train shed and (2) to introduce the highest possible degree of mechanization in intra-terminal transportation and sorting of parcel-post mail. These concomitant objectives were achieved by centering mail-sorting operations largely in a new building served by a new mail-car shed for loading and unloading mail-storage cars, and by providing a system of motor-operated conveyors within the new building as well as for connecting it with the train shed, the unloading platforms of the new mail-car shed, and the St. Louis post office.

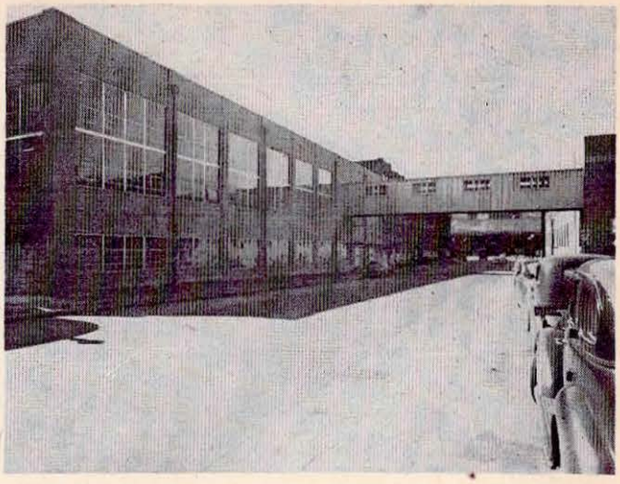
The new mail-handling building is on the south side of Clark avenue, directly opposite the St. Louis post office. It is directly east of, and adjoins, the existing Railway Express building, which in turn is directly east of Union Stations, being separated from it by Eighteenth street. Principal functions of the mail-handling building are the primary and secondary sorting of parcel post, the first operation being carried out on the second floor and the second on the first floor. Secondary sorting docks also occupy the first floor of the adjacent Railway Express building.

The mail-handling building is served on the south by the new mail-car shed, which has 13 stub-end tracks and seven platforms at car-floor level. All inbound, outbound and transfer parcel post handled in solid storage cars is loaded and unloaded in this shed. Underneath each of the three easterly platforms is a 60-in. belt conveyor by means of which parcel post unloaded from cars and deposited on the belts through hatchways in the platforms is transported and raised to the upper level in the mail-handling building for primary separation or direct delivery to a conveyor leading to the St. Louis post office.

Extensive Conveyor System

Parcel post arriving at the Union Station in mixed traffic and R.P.O. cars is delivered to the primary sorting dock in the new mail-handling building by a 48-in. conveyor belt. At the train-shed end this belt is suspended from the ceiling of the subway and runs transversely of the shed near its outer end and extends its full width. Hatchways in the platforms permit mail to be deposited

MAIL arriving at secondary sorting docks is loaded into low-bed trucks for delivery to new mail-car shed or into high-bed trucks for train-shed delivery.



OVERHEAD BRIDGE across Clark avenue carries conveyors leading to and from post office. The structure shown here is the new mail-handling building.

directly onto the belt from baggage trucks. Near the easterly side of the train shed the conveyor belt has inclined sections which raise it to the overhead level, at which level it extends across Eighteenth street in an enclosed bridge and thence through the second floor of the Railway Express building to the primary sorting dock of the new mail-handling building.

After primary separation, that part of the incoming mail destined for St. Louis is sent to the post office by a 48-in. conveyor extending across Clark avenue in an enclosed overhead bridge. This same conveyor may also deliver to the post office mail unloaded onto the 60-in. conveyors under the three easterly platforms in the new mail-car shed. The overhead bridge across Clark avenue has another 48-in. conveyor which brings mail into the sorting building direct from the post office.

How Primary Sorting Is Done

The primary sorting dock in the new mail-handling building is the heart of the new facilities. The function here is to sort into seven outbound primary separations mail that is delivered via conveyor belts from the train shed, the post office, and the new mail-car shed. A separation is also made for the St. Louis post office. The actual sorting of the mail is done by men stationed on a maple-floored platform 20 ft. wide and 110 ft. long. This platform is flanked on each side by a metal slide table of comparable length, which is inclined at an angle of 25 deg. At the top of each table, and running parallel with the sorting platform, is a 60-in. conveyor belt carrying the mail to be sorted. A traveling deflector, set at an angle to each of these belts, plows the mail off the belt, causing it to slide down the table to the men working on the sorting platform. The deflectors may be adjusted to move the full length, or any part thereof, of the slide tables, depending on the volume of mail to be handled and the number of men working on the platform.

There are six sorting stations on the platform, each of which has seven chute openings. Four additional chute openings are provided for delivery to the conveyor leading to the post office. Sacks and parcels taken from the slide tables are placed in these openings in accordance with the primary classifications. Mail thus deposited moves directly by chute or by other conveyor belts to the post office or to one of seven secondary sorting docks on the lower level, some of which, as previously stated, are located on the first floor of the express building.

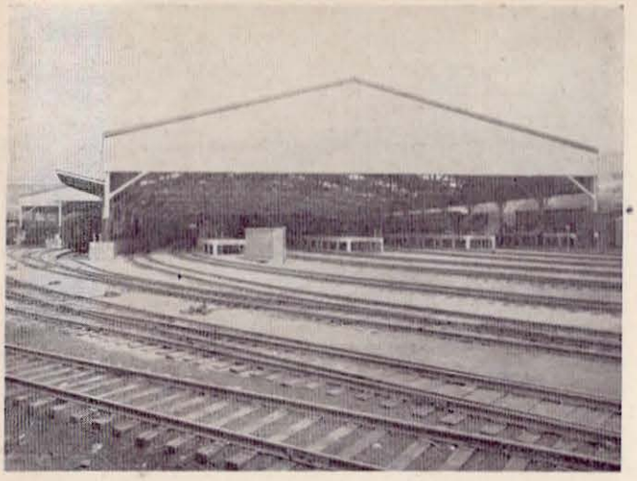
The secondary sorting docks are low-level wood platforms with saw-tooth perimeters to facilitate the spotting and loading of platform trucks. Whereas the seven primary classifications are by states, the secondary sorting—involving 50 to 60 classifications—is by trains. Mail separated at the secondary docks goes to one of two immediate destinations—the adjacent new mail-car shed for loading in outbound storage cars or the station train shed for loading in mixed traffic or R.P.O. cars.

Mail going to the outbound storage cars is loaded at the secondary docks in low-bed trucks which are hauled to the car-floor level loading platforms in the mail-car shed by electric tractors. Approximately 350 low-bed trucks are used for this service, and six electric tractors are available for hauling them.

Mail that must be moved from the secondary docks to the station train shed is loaded into conventional high-bed baggage trucks. These trucks must be taken to the basement level of the new mail building and thence through the basement of the express building to the subway under the train shed to be lifted to track level by the existing elevators there. Two ways are provided for moving these trucks between the first-floor and basement levels in the new building—a ramp and two elevators. Each elevator is capable of accommodating two of the trailers. In the basement the trucks are made up into trains which are hauled by gasoline-powered tractors to the train-shed subway.

Central Control Station

A complicated system of belt conveyors such as that provided at this facility must be controlled from a central point. Logically the control station is located at one end of the second-floor level in the new mail building, where the "dispatcher" has a view of the primary sorting activities on that level. At this point there is an illuminated control board, much like that for a C.T.C.



MAIL-CAR SHED, seen here from the outer end, has 13 tracks and 7 platforms for the loading and unloading of mail-storage cars.

LONG TRAINS of mail trucks no longer interfere with passenger movements by cluttering up the platforms in the station train shed.

system, showing the conveyor routes and containing push buttons for controlling conveyor movements.

A communication system, centering at the control station and embracing 58 talk-back speakers located at strategic points in the mail-handling building, the mail-car shed and the train shed, enables the dispatcher to make instant changes in the conveyor movements, depending on the needs at various points. Although operation of the belts is centered at the control station, switches are provided at various points by which individual belts may be stopped, but only the dispatcher can start them again. However, a keyed switch at each motor makes it possible for maintainers to stop the belts if necessary in making repairs.

Modern, Fireproof Construction

The new mail-handling building is a modern, fireproof structure with a length of 208 ft. along Clark avenue and a depth of 120 ft. It is of brick, steel and concrete construction with roof trusses spanning the entire width of the structure. The roof consists of metal roof decking covered with an insulated built-up roof. It has two access doors on the Clark avenue side for street trucks and 10 doors on the south side leading to the mail-car shed. All these doors are the motor-driven overhead type. The building is lighted with fluorescent fixtures throughout, is heated with steam unit heaters, and has a mechanical ventilating system and an automatic sprinkler system.

The basement of the mail-handling building, which extends under the entire structure, contains a battery-charging room, an electric substation, an equipment maintenance shop, and storage space for trucks, tractors and replacement parts for the conveyor system. On the second floor of the Railway Express building has been provided a wash and locker room for mail handlers, which contains 300 steel lockers.

The mail-car shed is completely roofed over with steel trusses covered with corrugated asbestos roofing, and is well lighted. Of the seven car-floor-level platforms here, five are 400 ft. in length, and the other two are somewhat shorter. A paved area is provided outside this structure on the east side so street trucks may unload mail directly through chutes onto the 60-in. conveyor under the easterly platform.

In providing the new mail-car shed, extensive track work, including new work and alterations in existing trackage, was necessary. A new two-story yardmaster's office was built and extensive floodlighting was installed to illuminate approach trackage outside the shed.

Handling Unbeltable Parcels

A small percentage of parcel-post packages are of such size or weight that they cannot be handled on the conveyor belts. Necessarily these must continue to be handled on baggage trucks. Unbeltable parcels inbound or outbound from St. Louis will move, as before, through the subway and tunnel route to and from the post office basement. The same applies to the handling of "preferential" mails, which will continue to be sorted at the existing mail shed at the outer end of the station train shed.

While the loading and unloading of mixed-traffic and R.P.O. cars must still be done inside the train shed, mail-handling operations here have been reduced by about 80 per cent as a result of completion of the new facilities. This means that operation of mail-laden trucks on train-shed platforms has been reduced to a minimum. The highly mechanized nature of the new facilities also means that the cost of handling mail at the station will be greatly reduced and that it will be done much faster. Another advantage is that the railroad was able to give up considerable space in the basement of the post office, which it formerly occupied under lease.

Design and construction of the new facilities were carried out by, or under supervision of, the engineering department of the Terminal Railroad Association of St. Louis, which owns and operates the station. V. C. Hanna is chief engineer. A. E. Biermann, principal assistant engineer, was in direct charge of the work for the railroad. The H. B. Deal Company, St. Louis, was general contractor. Operation of the new facilities comes under supervision of C. J. Wehmeyer, general mail and baggage agent for the terminal line.

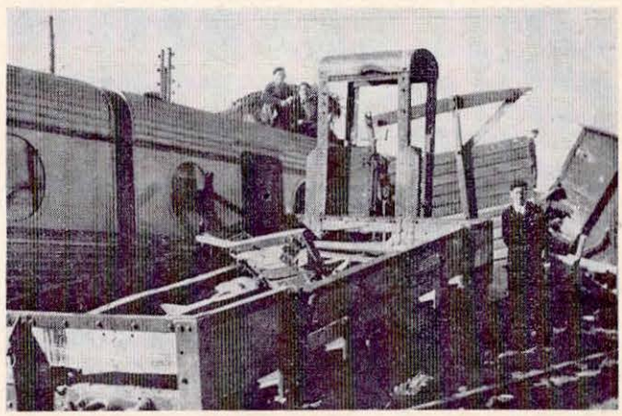
DEMONSTRATION AND GROWTH . . .

Three Years of Talgo in Spain

Light weight proves safe—Stability contributes to schedule cuts—Reversibility and independence of vehicles on the way

In 1949 the American Car & Foundry Co. designed and built a demonstration train based on the Spanish "Patentes Talgo." Many railroad men rode the train and it aroused wide interest. The next year two trains of the same design were delivered to Spain.

These trains each consist of three five-unit coaches and a baggage unit. The units are each 20 ft. 2 in. in length, supported at the rear end on a single pair of wheels and at the front end by the preceding unit. The attachments between the short units are all the same whether they are in the middle or at the end of a coach. The overall height is 4 ft., the floor 2 ft. 9 in., and the center of gravity about 2 ft. lower than conventional passenger cars. The width, inside, is just over 10 ft. The Spanish coaches seat 64 passengers each and weigh less than 500 lb. per passenger seat. This compares with



FREIGHT CARS DESTROYED, load scattered, but Talgos remained intact.

SPANISH TALGO running gear disassembled (left). Spanish coaches consist of five 20-ft. 2-in. units. Designs now under way call for coaches of groups of 30-ft. units, each reversible and completely independent.

weights per seat of 1,600 lb. to over 2,000 lb. for conventional American coaches.

At the time of the demonstration in this country the general reaction to the design was one of skepticism so far as its adaptation to American operating conditions was concerned. Would trains of such light weight be safe to run on American railroads? Could faster schedules be maintained which the light weight and low center of gravity of the design encouraged without requiring main lines to be resignaled? Would it be practicable to operate trains the cars of which could be run in only one direction? With the somewhat lengthy process required to separate and reassemble units, would it be practicable to vary the train consist? These were some of the questions raised at the time, all of which then stood in the way of the interest of railroad men being developed beyond the academic stage.

What Happens in a Wreck?

Since the demonstration runs of the American Talgo train in 1949 events have provided either satisfactory answers to these early questions or alterations of design have reduced or overcome the handicaps.

Three years of experience in regular passenger service on the Spanish National Railways have provided practical answers to the questions of the safety of the lightweight design and of the attainment of high schedule speeds irrespective of track conditions.

One of the most difficult points to establish in the lay mind is that weight, of itself, is not a criterion of strength in the design of a railway passenger vehicle—that, in fact, each pound of weight added to such a structure carries the seeds of its own destruction. The short span between the points at which the Talgo units are supported calls for a lighter structure than the span of 59 ft. 6 in. between the truck centers of an 85-ft. coach.

The strength adequacy of the Talgo design was strikingly demonstrated in an accident in which one of the Spanish trains was inadvertently switched into the side of a freight train at a speed of 60 m.p.h. The collision caused the two leading units of the passenger train to be displaced laterally about 8 ft. None of the remaining units were derailed and the train did not jackknife or buckle. No passengers were injured. Windows were broken, but the structures of all units remained intact. A number of freight cars loaded with steel billets were destroyed and their lading widely scattered.

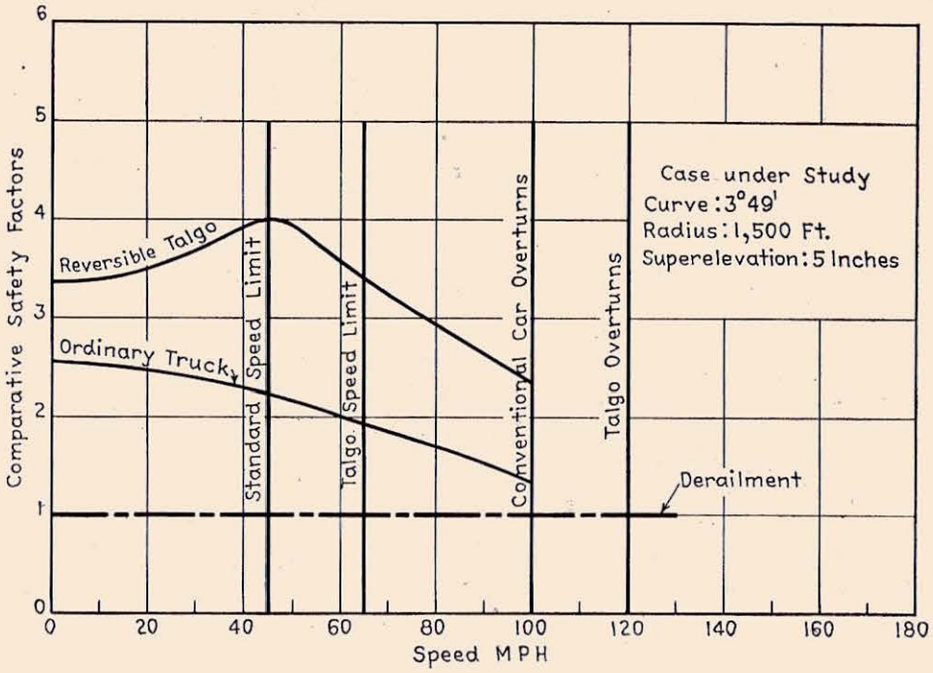
The Schedule Speed-Speed Limit Ratio

Main-line track conditions in Spain are extremely poor in comparison to American standards. Maximum speed with conventional rolling stock is limited to 45 m.p.h. and the riding is very rough. The Talgo trains run on a 400-mile line between Madrid and the French border at Hendaye over a route which traverses a mountainous country with grades exceeding 2 per cent. The average running time of conventional trains over this line is 12 hours, but the Talgo trains make the run in about 8 hours with seven stops—an average speed of 50 m.p.h.

While the speed limit for the Talgo has been set at 75 m.p.h., the trains have demonstrated that they can make the 50 m.p.h. schedule without exceeding a top speed of 60 m.p.h. During each run an average of 45 min. is lost waiting for connections, road work and other operating delays. In spite of these delays, the Talgos have a record of 98 per cent on-time arrivals at terminal points.

Several factors contribute to this result. The light weight of the train permits rapid acceleration and deceleration. It facilitates the attainment of a high ratio of horsepower to weight and a high braking ratio. Stops with a fully loaded Talgo train are made from 60 m.p.h. in about 1,000 ft. in 30 sec.

The low center of gravity and guided axle principle of the Talgo design are also factors in narrowing the spread between overall schedule speeds and speed limits because they permit fewer and less severe speed restrictions around curves. The difference between a conventional car, carried on trucks, and the reversible Talgo design in this respect is shown by a theoretical study of the action of the two types of suspension on a 3-deg. 49-min. curve with a 5-in. superelevation. The speed limit for conventional equipment shown in the graph is the speed at which the centrifugal forces balance the



THEORETICAL COMPARISONS between car with ordinary truck and reversible Talgo with respect to safety against derailment and overturning.

effect of the superelevation while the speed limit shown for Talgo is the maximum comfortable speed for the curve in question based on Spanish operating experience.

Mechanical Changes

As the Talgo trains were built the axis of the single pair of wheels under the rear end of each unit remained always at right angles to the longitudinal center line of the unit. This meant that, when moving forward, the wheels were being guided around the curve by the rear end of the next unit ahead and the wheels were directed toward the inside of the curve. If the cars were moved backward, the wheels were directed toward the outside of the curve, thereby creating the conventional angular relationship between the outside wheel and the rail which tends toward derailment. This is an undesirable condition for operation at high speeds. It has been changed by the development of a mechanical connection between the axis of each wheel and the body of the adjoining unit.

When the train moves around a curve, the angular displacement between the longitudinal center lines of adjoining units causes the position of the wheels to be adjusted so that their axis is at right angles to the tangent of the curve at the point of wheel and rail contact. No matter in which direction the units are moving, therefore, the guided axles cause the wheels to roll free of angular contact between the flange and the rail.

Another change in design is under way which will replace the single Talgo body unit with a group of 30-ft. units as the basic element of train consist. These will be permanently coupled so far as train operation is concerned, but separable for the purpose of general repairs. To make each group a completely independent vehicle the wheels and axles of the individual units are so arranged that the ends of the group are self supporting. Each end of this group will also be fitted with normal end closures and tight-lock type couplers for quick disconnect.

In addition to the mechanical changes which permit completely reversible and interchangeable articulated vehicles, designs currently being developed are for coaches of standardized shells with a cross section of approximately the same area as that of conventional coaches. Studies indicate that these standardized bodies can accommodate any interior arrangement—coach, diner, parlor or various types of sleeping cars, as desired.

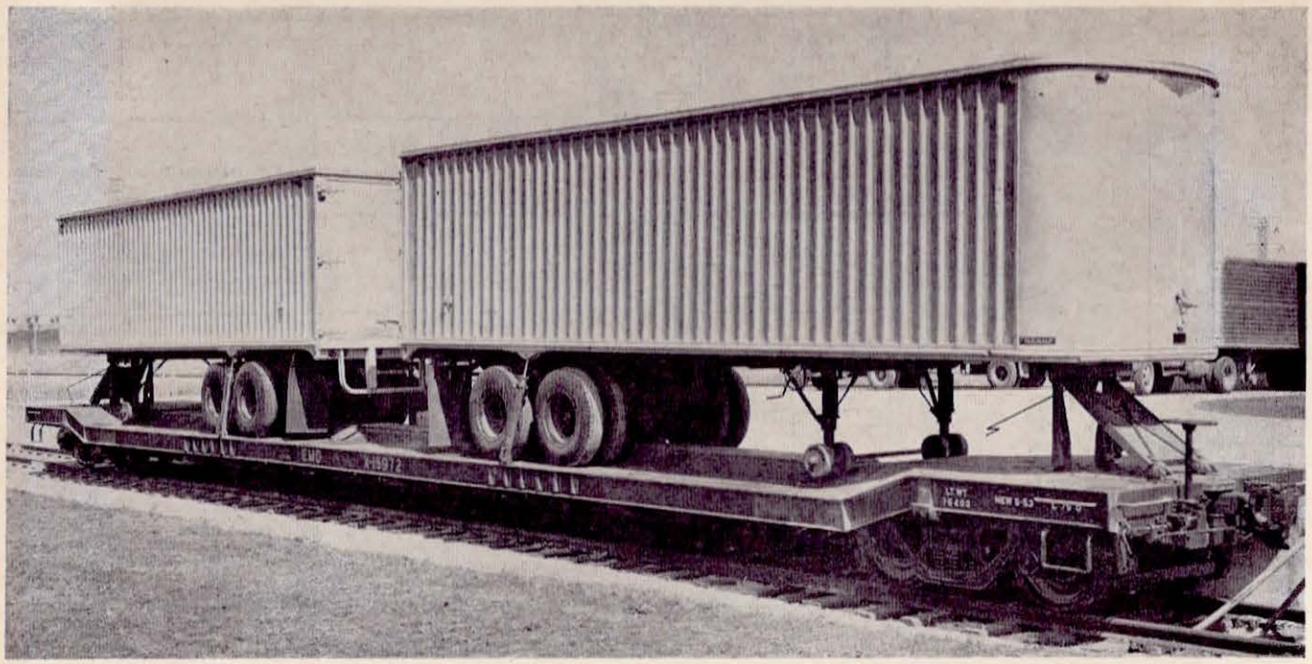
Operating and Maintenance Costs

Studies of the operating costs of the Talgo trains have been made by the Spanish National Railways which have indicated to the management that if existing passenger trains could be replaced by Talgos, the railways would effect train-operating savings of more than 60 per cent.

It is difficult to convert the Spanish cost studies into terms of American dollars because of differences in the two economic structures. Man-hour comparisons would also be open to doubt because of probable differences in productivity. Fuel and lubricant consumption, however, are indicative of the influence of the light weight on train-operating costs. Per train-mile, fuel consumption averages 0.605 gal. and locomotive lubricants, 0.096 lb.

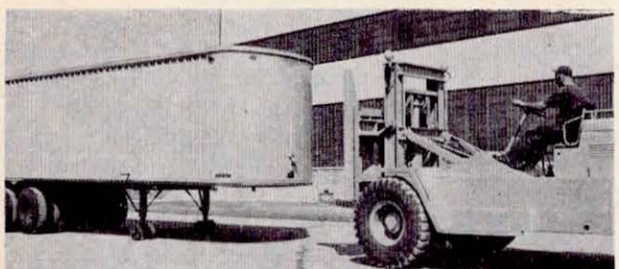
The maintenance of Talgo trains is simple. All equipment normally mounted underneath the body of a conventional passenger car is contained above the floor in one unit of each coach where it is readily accessible. There is nothing under the car to maintain but the running gear and brakes. At intervals of several thousand miles the Spanish trains are run over a pit, inspected for possible road damage, and greased at six points per body unit. Periodic examinations have shown the average wheel wear less than 3/16 in. per 100,000 miles.

The Talgo brakes have internally expanding brake shoes, hydraulically applied. Operating experience indicates that these brake shoes have a life expectancy of more than 100,000 miles.

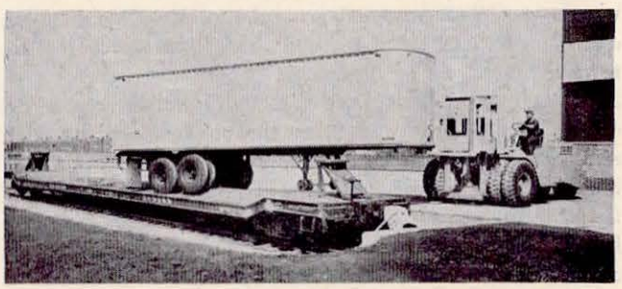


GM Unveils Trailer Transport

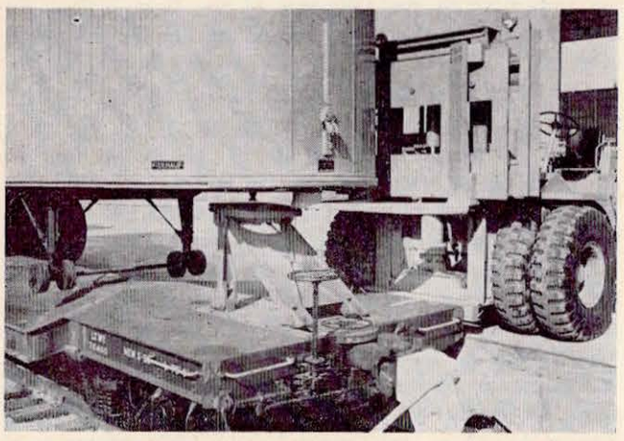
First formal demonstration of new car "kicks off" General Motors-sponsored rail-highway coordination plan



1 Parked trailer is approached by loader. Pin on loader fits a hole in trailer's towing plate . . .



2 . . . just forward of the king pin. Trailer is then backed on to the transport car . . .



3 . . . and the king pin moved into position, lowered on the stanchion and locked.

4 Side sway of the trailers is prevented by adjustable struts, which fit holes in side of car.

A plan aimed at bringing long-distance motor common carriers and major railroads together by means of regular "trailers-on-flats" operations was announced by the General Motors Corporation at a special exhibition and demonstration at the La Grange, Ill., plant of the Electro-Motive Division of General Motors on September 30. Present were 125 selected management representatives of the nation's largest railroads, including 12 presidents, and press representatives. A similar showing will be held later for motor carrier industry representatives.

Pointing out that the basic idea of carrying highway trailers on railroad flat cars is not new, N. C. Dezendorf, GM vice-president and general manager of Electro-Motive, emphasized that the GM rail-highway coordination program is a "new concept of that idea."

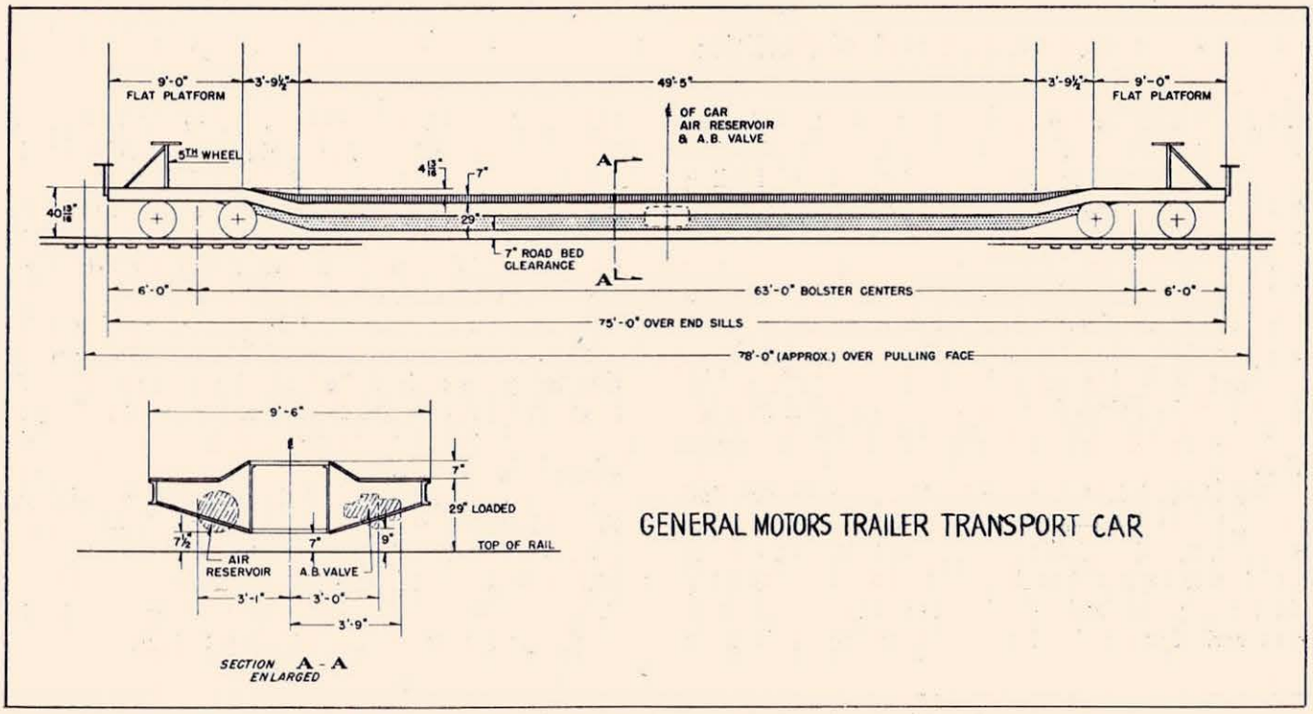
"All earlier and present attempts to transport highway trailers by rail have utilized existing railroad flat cars which can only carry one standard size trailer," he said. "Our program has been designed to overcome the economic handicap of these present services by offering rail equipment that will carry two trailers, each up to 35 feet in length—or the largest trailers in regular highway service."

General Motors apparently envisages its plan as being restricted to motor common carriers—not open to any and all truckers. Trailers owned by these motor common carriers would be moved by the railroads on a division of revenue basis, as authorized by the Interstate Commerce Commission, thereby sidestepping special rates or tariffs which might upset existing railroad rate structures.

"The plan offers the railroads a revenue producing service potentially six or more times as profitable as that derived from the typical l.c.l. box car," Mr. Dezendorf continued. "On the other hand, it provides motor common carriers with a dependable high speed service that will cut over-the-road costs, nullify pyramiding insurance rates, and eliminate or reduce the effect of non-uniform axle load restrictions."

In discussing the plan, Mr. Dezendorf points out that GM has "recognized from the beginning that final success depends upon three fundamental principles:

"(1) Equipment that will handle *two* standard highway



GENERAL MOTORS TRAILER TRANSPORT CAR

SPECIFICATIONS

Present specifications of the GM trailer-transport car are outlined below. This design, however, is not "frozen," and is subject to changes and improvements when the car goes into production.

Load Capacity—**120,000 lb.**

Load Limit—**132,000 lb.**

Light Weight—**Approximately 74,600 lb.**

Coupler—**"F" type coupler in combination with rubber draft gear of the type used in GM locomotives. This type of draft gear, together with the cushioning in the trailer mount, are designed to produce riding qualities as smooth as those obtained with a full-floating underframe.**

Handbrake—**One depressed-type handbrake at each end-sill.**

Airbrake—**A. B. air brake schedule, at 60 per cent braking ratio, when empty.**

Truck—**The demonstration car has American Steel Foundries ride-control trucks, equipped with clasp brakes. Production models, however, can use any standard high-speed freight truck, with clasp brakes optional at extra cost.**

Tie-down equipment—**Stanchions are provided at each end of the car with a fifth wheel arrangement designed to engage and lock the king pin at the front of the trailer. Each stanchion is equipped with rubber shock absorbers which allow up to 4½ in. longitudinal movement in either direction as a means of absorbing shock. Side roll of the trailer body is controlled by means of a pair of adjustable, rigid struts installed on each side of the trailer wheel. Each strut fits a special lug welded on the trailer body, and sits in a simulated stake pocket in the side of the car.**

Cost—**About $14,000.**

Maneuverability—**The car is designed to take a 250-ft. radius curve at full speed and a 180-ft. curve at reduced speed.**

semi-trailers per car. The GM trailer transport car, which meets the standard clearance diagram on all railroads, satisfactorily answers this problem.

"(2) Establishment by the railroads of schedules that will equal or better the motor carrier's over-the-road time.

"(3) Establishment of railroad charges (on a division of revenue basis) low enough to attract the widest possible use of the service by motor common carriers—in other words, lower than truckers' present costs of hauling over the highway."

In bringing the motor common carrier and the railroad industry together into a single coordinated freight service, as envisaged by GM, it is recognized that two now almost completely divergent viewpoints must be reconciled. It has been suggested that this might be achieved through the services of an independent "intermediary" or "coordinator." The Rail Trailer Company, which participated in the GM demonstration, holds itself out as prepared to assume such a role. At the demonstration, Rail-Trailer announced plans to buy GM trailer transport cars for lease to railroads having service contracts with it.

The loader used in the demonstration, and pictured here, is an adaptation of the Ross Series 2636 fork truck, manufactured by the Ross Carrier Division of the Clark Equipment Company. Also on exhibit at the demonstration was a model of the Baker-Raulang "Trailoader" described in last week's *Railway Age* (page 34). Several other equipment manufacturers are reported to be working on similar devices for loading trailers on flat cars.

New Terminals for "Piggy Backs"

General Motors exhibit depicts how a depressed-center type car requires a new concept of terminal facilities

The advent of the depressed-center type flat car for the movement of loaded highway trailers has outmoded the end-loading ramp, or "circus-style" system of loading "piggy backs" now used on most railroads, according to its proponents.

At the demonstration of its new trailer transport car last week, General Motors Corporation introduced its ideas of how terminals may be designed to accommodate the new kind of car, and to permit maximum speed and economy in the loading and unloading operations. The Pennsylvania Railroad and the Fruehauf Trailer Company cooperated with GM in staging the demonstration.

The General Motors plans envisage the construction of special terminals—similar to the models pictured herewith—at the edge of metropolitan areas. These terminals will feature depressed tracks or raised platforms to bring the loading area level with the floor of the trailer transport car. "Speedy side loading and unloading in these terminals," N. C. Dezendorf of General Motors says, "will assist the railroads in cutting service costs which, along with the double pay-load provided by the increased capacity of the trailer transport car, should enable the railroads to establish a division of revenue that will be equal to or lower than the over-the-road costs of the motor common carrier."

To get necessary speed, GM spokesmen picture its trailer transport cars run in solid trains which will be able to bypass main freight classification yards. This arrangement is expected both to reduce costs and speed service. The car is not especially designed to operate in mixed freight service.

Numerous variations of design can be evolved from the basic principle of the depressed track or elevated platform. Two GM designs are pictured herewith, along with a patented design development by the Pullman-Standard Car Manufacturing Company for use with its special car for transporting highway trailers.

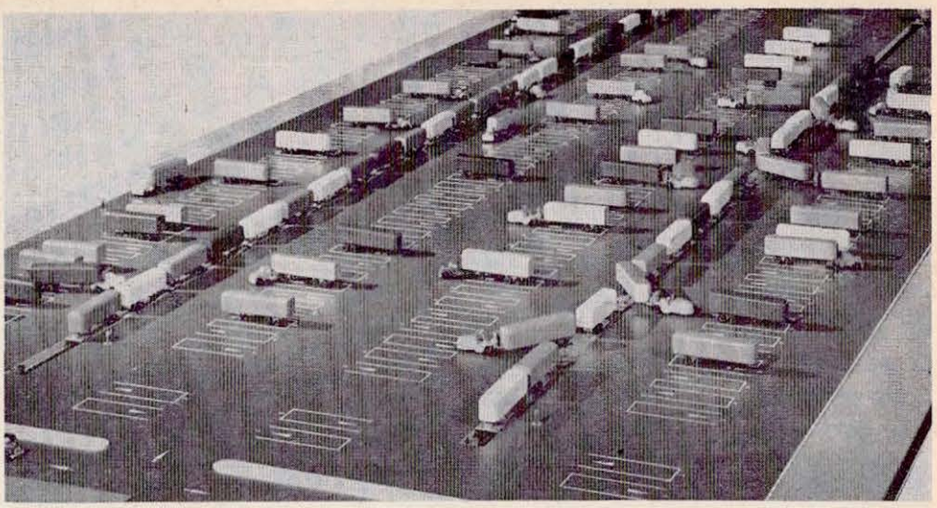
SUMMARY OF TRAILERS-ON-FLATS DEVELOPMENTS

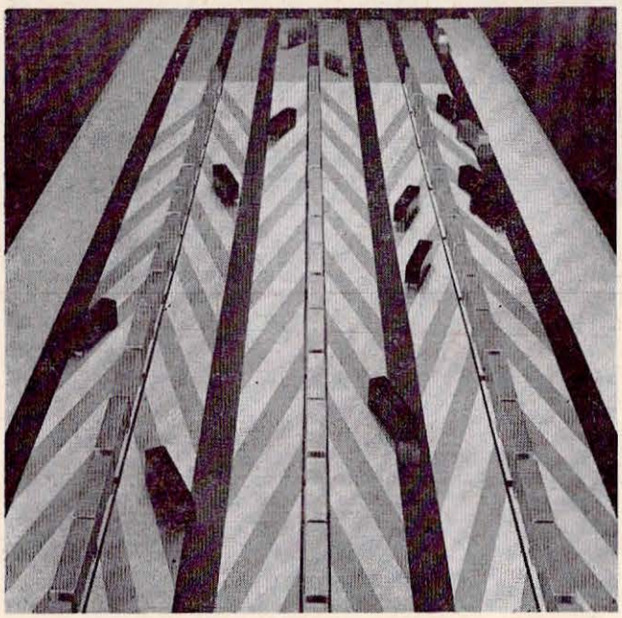
Developments in the movement of highway trailers on flat cars within the railroad industry have been coming thick and fast in recent months. The following pertinent articles on the subject have appeared in *Railway Age*:

- **"Moving Highway Trucks on Trains," November 4, 1950, page 50. A resume of past developments.**
- **"G.T.T.M.—The French System of Winning Truck Traffic Back to the Rails," April 2, 1951, page 46. A review of the French "piggy back" system, including a description of their special devices.**
- **"Trailers on Flats—A 'Marriage of Convenience'?," July 2, 1951, page 29. An editorial.**
- **"New Cars for New Haven's Trailers-on-Flats Service," March 24, 1952, page 27. A description of the New Haven's new specially designed cars.**
- **"Loaded Highway Trailers Are Important Traffic on the New Haven," April 7, 1952, page 117. What this business means to the New Haven, and a description of that road's operating plan.**
- **"Those Piggy Backs," March 30, 1953. An editorial.**
- **"Piggy Backs—Good or Bad?," April 20, 1953, page 80. A review of the values and problems, from the railroad industry viewpoint.**
- **"Piggy Back Car Loads Over Sides," June 1, 1953, page 19. A description of the new Pullman-Standard flat car designed for handling two loaded highway trailers.**
- **"Another Piggy Back Flat Car," June 22, page 11. *Railway Age* gives advance information about the new GM trailer transport car formally unveiled at La Grange last week.**

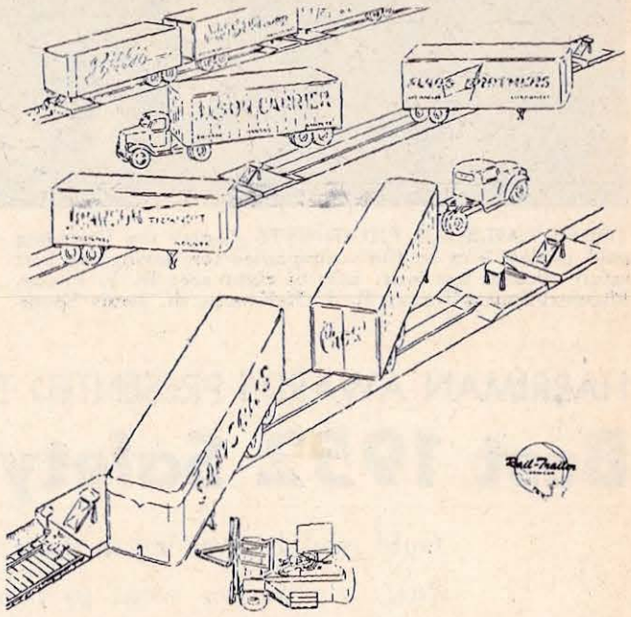
In addition, there have been recent announcements of the new Southern Pacific services (May 11, 1953, page 14) and the new Chicago & North Western services (Aug. 31, 1953, page 9).

THIS GM ARRANGEMENT would constitute a 24-car terminal, based on the use of two stub tracks.

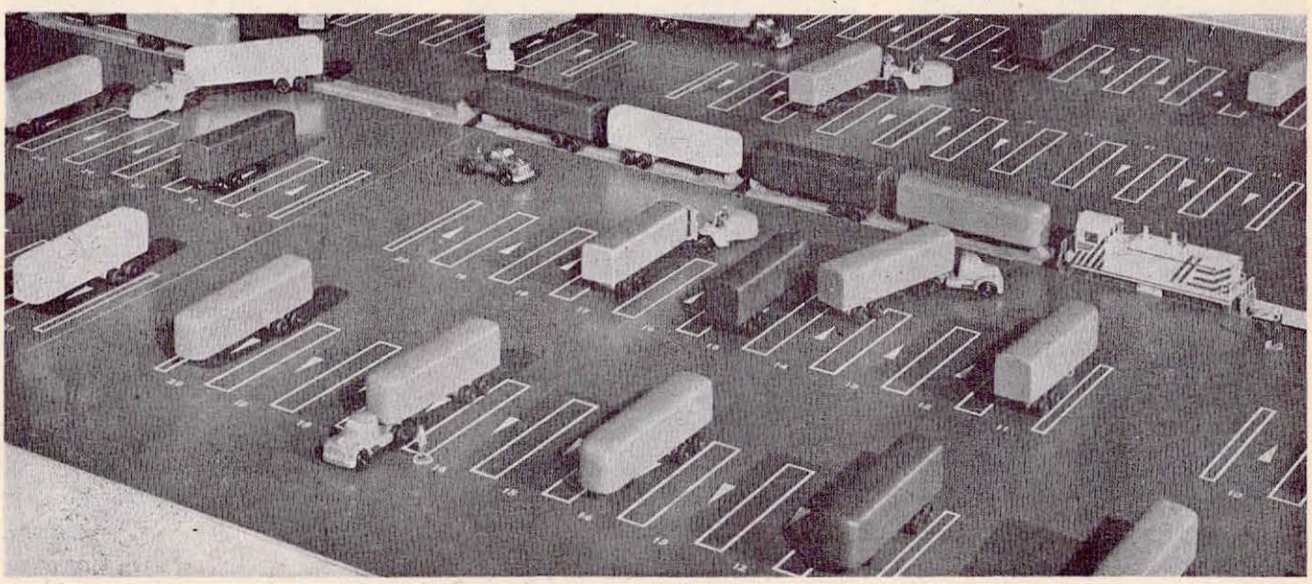




A 30-CAR terminal based on the use of three stub tracks, as designed by Pullman-Standard.



ANOTHER DESIGN uses the transport cars themselves for storage of the parked trailers.



A 10-TRAILER-TRANSPORT CAR terminal based on the use of a single through track, as envisaged by General Motors.

THREE RAILROAD PRESIDENTS display the Harriman gold medals won by their companies for having the best safety records last year. Left to right are: D. V. Fraser, Missouri-Kansas-Texas; H. J. McKenzie, St. Louis Southwestern; and W. C. Beaman, Texas Mexican. The gold medals, plus 11 certificates of commendation to other roads, were presented at a dinner in the Hotel Ambassador, New York, on September 17.

HARRIMAN AWARDS PRESENTED TO RAILROADS FOR . . .

Best 1952 Safety Records

Gold medals awarded to three railroads which led their respective groups last year; certificates went to two switching and terminal companies and three railroads from each of three railroad regions

P. J. Lynch (left), vice-president operations of the Union Pacific; Cyril Ainsworth, president, American Museum of Safety; and F. B. Lewis, UP superintendent of safety.

H. E. Simpson (left), president, Baltimore & Ohio; James G. Lyne (center), editor of *Railway Age* and chairman of the Harriman award committee; and Mr. Ainsworth.

The Norfolk & Western's certificate is accepted by President R. H. Smith (left), from Mr. Ainsworth. D. W. Naff, N&W superintendent of safety, is at the right.

S. F. Mackay (left), president and general manager of the Lehigh & Hudson River, and Mr. Ainsworth.

L. Dean Curtis (left), vice-president of the Atlantic & Danville, receives certificate from Mr. Ainsworth.

J. H. Kline (left), president and general manager of the Lake Superior & Ishpeming, and Mr. Ainsworth.

HARRIMAN AWARD COMMITTEE ENLARGED

The Harriman Award Committee has been enlarged to include the chairmen of the three territorial railroad associations and the chairman of the Safety Section of the Association of American Railroads. This was announced by James G. Lyne, editor of *Railway Age* and chairman of the award committee, at the September 17 Harriman Award dinner.

C. P. Fisher, general manager, Chicago Union Station, holding certificate awarded to that company.

The Portland Union Terminal was represented by C. L. Quigley (left), and Frank Reynolds (center).

Grouped around the Central of Georgia award are, left to right: B. J. Tarbutton, president; W. E. Dillon, vice-president and general manager; and Mr. Ainsworth.

J. J. Swift (left), vice-president and general manager of the Lehigh Valley, accepts certificate from Mr. Ainsworth (right), as A. C. McIntyre, LV vice-president, traffic, looks on.

A. V. Rohweder (left), superintendent of safety and welfare of the Duluth, Missabe & Iron Range, accepts from Mr. Ainsworth the certificate of commendation awarded to that railroad.

THESE THREE OFFICERS presided at the meeting: T. W. Hays, Union Pacific, second vice-chairman; T. W. Troth, Frisco, chairman, and W. N. Hartman, Chesapeake & Ohio, first vice-chairman.

Economics and Electronics

. . . DISCUSSED AT SIGNAL SECTION MEETING

Savings, of from 17 per cent to 60 per cent on investment costs, realized from installations that also expedite trains and increase track capacity

Recent installations of modern signaling are effecting demonstrable savings of such magnitude as, for example, annual returns of: (1) 59.5 per cent on the installation of gates and flashing-light signals at 13 street crossings in Memphis; and (2) 14.7 per cent on capital required for centralized traffic control on 238 miles of single track which saves 40 minutes in the territory for more important passenger and through freight trains.

Signaling developments in the past year include the application of electronics in cab signaling, in centralized traffic control and in the automatic control of car retarders in classification yards.

These and other subjects were discussed at the fifty-fifth annual meeting of the Signal Section of the Association of American Railroads at the Chase Hotel, St. Louis, September 28, 29 and 30. R. W. Troth, superintendent signals and communications of the Frisco presided at this meeting, at which the attendance was 745 men, representing railroads and supply manufacturers, and 331 women. This was the largest registration on record for a Signal Section convention.

The program included addresses by Chairman Troth; Clark Hungerford, president of the Frisco; R. G. May, vice-president, A.A.R.; Owen Clarke, member of the Interstate Commerce Commission; and S. N. Mills, director of the I.C.C. Bureau of Safety. A paper entitled "Automatic Retarder Control System" was presented by J. E. Freehafer, assistant chief engineer, General Railway Signal Company. Another, entitled "Coordinated Lightning Protection of Signal Systems," was presented by E. J. Allen, Lightning Arrester division, General Electric.

The section's Economics Committee gave a method of calculating the cost of train stops for a freight train hauled by a four-unit diesel locomotive. The example applied on level tangent track, with a locomotive that consumes 400 gal. of fuel oil per hour at full load, and 4 gal. of fuel while stopped 6 min. Starting the train requires fuel consumption of approximately 5 per cent of the full load hourly rate, as well as a delay of 5 min. in addition to the period stopped.

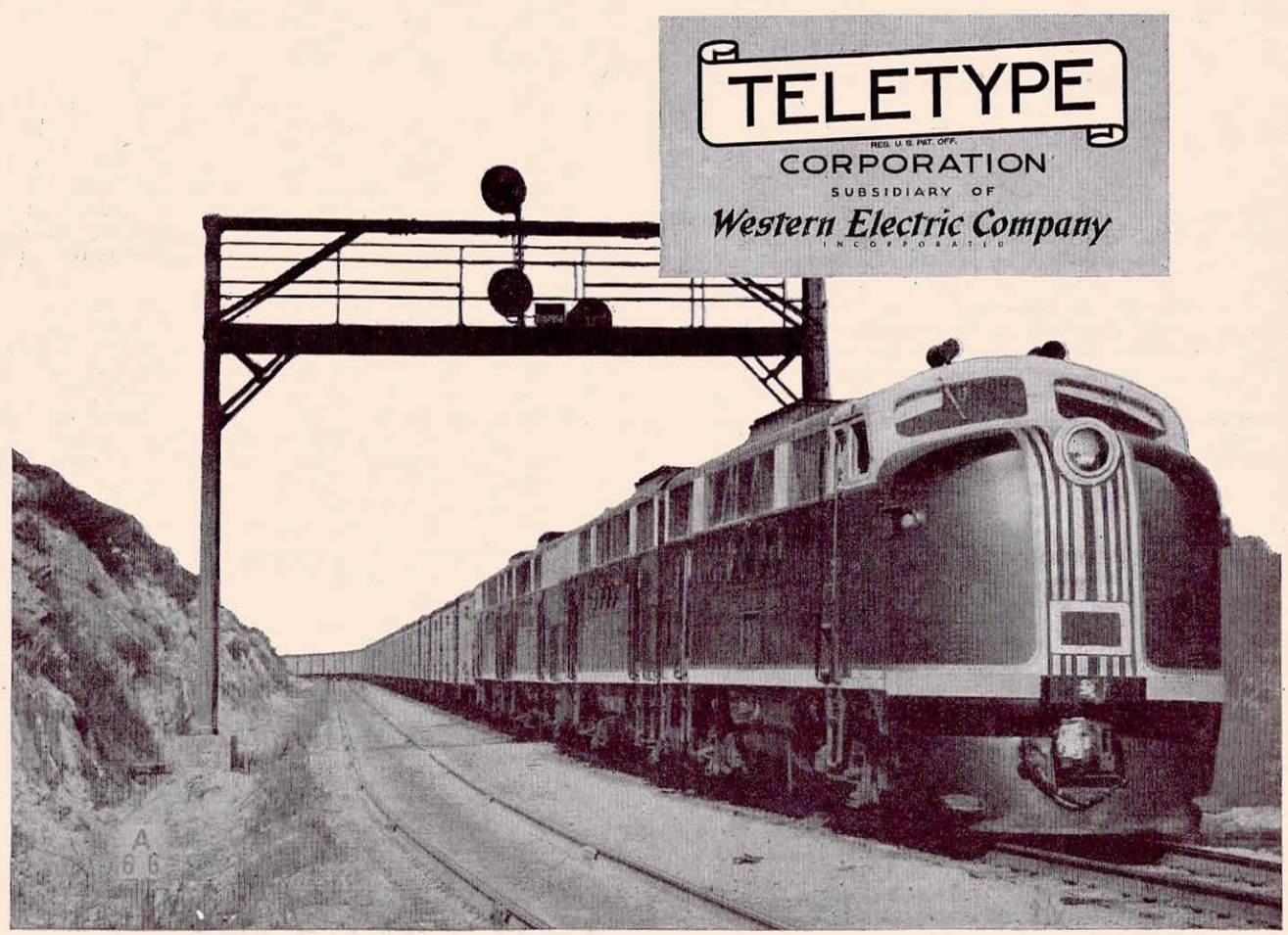
Thus the total increased fuel consumption is 20 gal. + 4 gal. at 10 cents a gallon, or $2.40.

This short cut method supplements more detailed methods of calculating the costs of train stops presented in previous years by this committee.

Centralized traffic control, with a power switch at

How TELETYPE can help improve freight schedules

Freight timetables need no longer be geared to out-dated communications. With Teletype, switch lists, block and manifest reports, set-out and pick-up reports, diversion orders and passing reports arrive *before* the train, and because Teletype delivers a *printed* message, it's safe and dependable.



"OPEN MINDED" ON MORE I. C. C. SAFETY REGULATION

. . . says Commissioner Clarke

"I have been advised that in the opinion of some of you engineers certain rules are in need of still further revision or complete elimination. Since the commission wants rules that are practical and reasonable and accomplish desirable purposes, without being unduly restrictive or unnecessarily burdensome, we invite your constructive suggestions for further amendments."

As to proposed legislation, passed by the Senate but not acted on by the House, to authorize the commission to make mandatory the installation of certain railroad communications systems, Commissioner Clarke said:

"It would seem that the proposed language [radio and other electronic devices] is broad enough to include train communication systems of both the radio and inductive types, which are now being extensively used on railroads in this country. In other words, with Section 25 amended as proposed in this bill, the commission would have the same authority with respect to train communication systems as it now has with respect to block signal systems, interlocking, automatic train stop, train control and cab-signal devices, and other similar appliances.

"In commenting upon the foregoing legislation I wish to make it unmistakably clear that I express no opinion concerning its necessity or desirability. Generally speaking, I have found that most of the railroad industry is quick to utilize all new techniques designed to increase the safety of train operations. I am not convinced there is any real need for legislation of a compulsory nature requiring railroads to employ modern devices that sound managerial judgment dictates should be used anyway. However, until I have an opportunity to study all the facts I shall have an open mind on the proposal."

OTHER ECONOMICS COMMITTEE REPORTS:

Improved protection was installed at 13 street crossings on the Illinois Central in Memphis, Tenn. Seven of the crossings are protected by automatically controlled flashing light signals, and six by automanual short-arm gates and "No-turn" signs. Prior to this modernization, 25 watchman tricks were required at the 13 crossings. With the new arrangement, only 3 watchman tricks are required.

This new protection renders dependable 24-hour operation; gives a uniform and more effective type of protection; increases safety for street traffic as well as train operation; and reduces operating expenses. The project cost $72,655, and the net reduction in annual operating expenses is $89,700.

A table has been prepared by the committee to show for 1951, specified elements of cost per freight train-hour, excluding train crew wages. These costs varied from a minimum of $13.19 on one road to a maximum of $86.65 on another, with a composite average of $37.12 for 78 roads.

A table of track and roadway maintenance expense per equated track mile for 1951, shows variations from a minimum of $1,376 to a maximum of $9,971, with a composite average of $3,181 for 78 roads.

The committee secured detailed information concerning 182 bond failures that involved 236 train stops and 45 hours and 46 minutes delay time. The costs were: $1,729 for signal labor; $272 for signal material (new bonds); train stops, $922; and delay time $1,394. The total of $4,317 averages $23.72 per bond failure.

one end of each siding and a spring switch at the other, was installed by the Burlington in 1951 on 238 miles of single track that handles 9 to 15 trains daily, which is relatively light traffic. On this territory, between Ravenna Neb., and Alliance, train operations previously were authorized by timetable and train orders. No signaling was in service and siding switches were hand-thrown.

The C.T.C. system has accelerated trains, and has eliminated a bottleneck which previously occurred practically every night, involving one passenger train and one manifest freight in each direction. The dispatcher has been able to expedite these four priority trains an average of 40 minutes each. In addition extra trains save more than an hour because of the ability to quickly arrange meeting and passing points as operating requirements dictate. Other savings include safety in train operation and release of personnel for duties elsewhere.

The cost of this C.T.C. was $1,681,697 charged to capital investment and $189,360 to operating expenses. The net reduction in annual operating expenses is $297,337. (A description of this C.T.C. project appeared in *Railway Age*, November 12, 1951, page 41.)

Electronics in Signaling

Extensive reports on recent developments in the use of electronics in signaling were presented by the Committee on Signaling Practice and the Committee on Elec-

(*Continued on page 92*)

PUT TRANSPORT POLICY ABREAST OF TIMES

. . . says Clark Hungerford

"Railroading today is a blend of modern tools and specialized skills. Everything that is done to improve railway signaling is intended to further overall efficiency of rail transportation. Especially in recent years, the effort to increase efficiency in the face of rising costs has been a major objective of management.

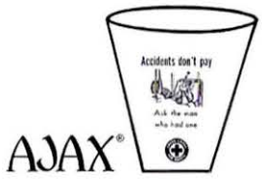
"Railroads have spent record sums of money on both equipment and roadway. Improved signaling . . . along with dieselization and other advancements . . . contributes to the safety and dependability of train movement . . . and it also aids in keeping rail transportation on the low-cost basis required by the national economy. That economy is dependent upon many forms of transportation, and each should be permitted to make the contribution for which it is best fitted. In a free business society the rule of the market place is competition. But government long ago held that in transportation, competitive practices had to be closely watched and regulated.

"The current discussion points up the need for a transportation policy which is abreast of the times . . . and which takes into account the important fact that although the rail system remains the backbone of the transportation network, it is today subject to increasingly vigorous competition on a selective basis.

"The railways have changed to meet the needs of modern times. The time is now at hand for a re-evaluation of the entire transportation picture . . . to promote an equitable and up-to-date transportation policy, and to end the practice of trying to solve today's problems with yesterday's remedies."

Paper Cups—

How can they cut my insurance costs?



It's simple as A, B, C.

A – Imprinted AJAX® and AERO® Paper Cups offer the most effective and economical way to get safety messages *read.* *(They put your safety messages right before your worker's eyes, several times a day – at times when he is relaxed, receptive, ready to read.)*

B – The National Safety Council confirms that safety messages *that get read* do help reduce accidents.

C – You know that fewer accidents mean lower insurance costs for you.

So . . .

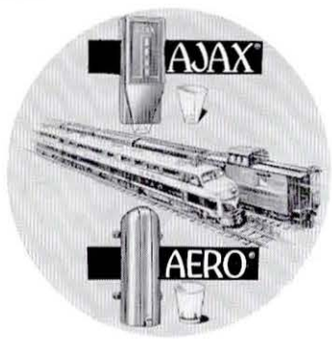
Provide AJAX or AERO Cups

For Maintenance of Way

AJAX CUPS and Mobile Drinking Water Tank deliver fresh cool water to workers on the line – mean less time lost on the job. Cups in 4 oz., 6 oz., and 7 oz. sizes, packed imprinted with assorted standard safety messages, or your own message to order.

For Locomotive or Caboose

AERO 2-piece, flat-bottom CUPS, are available imprinted, like AJAX CUPS, with standard safety messages. For either type, there is a heavy steel dispenser which can be bolted or welded securely to bulkheads. Required by law in some states, it's good employee relations anywhere.



UNITED STATES ENVELOPE COMPANY

GENERAL OFFICES • SPRINGFIELD 2, MASS.

14 Divisions from Coast to Coast* * 15 after June 1, 1954

CS-3R

To direct popular attention to the remarkable achievements in railroading, this advertisement has been run in national business magazines.

He shuffles freight cars

AIR BRAKE DIVISION . . . air brake equipment, brake slack adjusters, anti-wheel-slip devices, compressors and accessories for all rail vehicles and trolley buses.

INDUSTRIAL PRODUCTS DIVISION . . . air compressors, cylinders, actuators, air control devices of all kinds; engineered pneumatic control systems.

MELPAR, INC. . . . research design and manufacture of microwave communication systems and test equipment. Miniaturization and unitization of electronic gear.

with his *finger tip*

• If you could ride a freight car from one end of the country to the other, you might travel on half-a-dozen trains, on several different railroads.

One of the most difficult railroading jobs, therefore, is getting the right car on the right train. This is an old problem to the railroad men and they solve it with "classification" yards, where cars are assembled into trains.

Gravity type classification yards are the most efficient. Cars are pushed to the top of a man-made hill. Then they are uncoupled singly, or in "cuts" of two or more. The cars roll down the hill, through a network of switches onto the desired track. Each track then contains a new train.

Union Switch & Signal Division of Westinghouse Air Brake Company makes an automatic push-button control system for these classification yards. Just before the cars start down the hill, the operator presses buttons—one for each cut of cars. The track switches are automatically positioned ahead of each cut as it rolls down, thereby guiding it to the proper track.

But more than that, the operator controls the *speed* of the cars by pushing a button. Special equipment actually measures the velocity of each car or cut, then powerful electro-pneumatic retarders squeeze the sides of the wheels and slow the cars down to the desired speed.

On one railroad, this push-button system *doubled* the classification capacity. Eventually, they expect to triple the old figure. Lower operating costs will enable the system to pay for itself in only four years. And shippers enjoy faster, more dependable freight service.

Westinghouse Air Brake Company is the world's leading manufacturer of railroad air brake, switch and signal equipment. It is also a major manufacturer of equipment for the oil, gas, mining, construction, earth moving, marine, automotive and aviation industries. It specializes in advanced electronic and physical research in such wide fields as radar, guided missiles and communications.

UNION SWITCH & SIGNAL DIVISION, Swissvale, Pa.

Manufacturers of centralized traffic control, car retarder, automatic train control, train communication and interlocking systems and apparatus.

Westinghouse Air Brake COMPANY

EXECUTIVE OFFICES:
GATEWAY CENTER, PITTSBURGH 22, PA.

LE ROI COMPANY . . . internal combustion engines, portable air compressors, Tractair, rock drills for the construction, petroleum and mining industries.

GEORGE E. FAILING COMPANY . . . portable drilling rigs for oil, water and mineral exploration and a variety of attachments and supplies.

LE TOURNEAU-WESTINGHOUSE COMPANY . . . earth moving equipment, including tractors, scrapers, haulers and similar units.

HOW THE G.R.S. ELECTRONIC RETARDER CONTROLS WORK:

The weight detector is a weight-sensitive unit, installed on the rail ahead of the retarder, which automatically determines a weight class for each car as the wheels roll over the detector. This weight-class information is utilized to establish the speed at which the car or cut of cars is to be released from the retarder.

The interferometer is a speed-measuring device which provides continuous and essentially instantaneous measurement of the speed of each car or cut of cars as it moves through the retarder. The interferometer uses a narrow beam of ultra-high-frequency radiation aimed through the retarder area. This radiation is continuously emitted by a sharply directional antenna mounted in a completely enclosed housing installed between the rails close to the leaving end of the retarder. A portion of the radiated energy is reflected from any car or cut of cars approaching and moving through the retarder. By combining the original and reflected frequencies in suitable circuits, a speed-indication output is produced which the automatic retarder control system uses in establishing when the car has been retarded to the speed appropriate to the weight class determined by the weight detector.

These devices and controls were described and illustrated in *Railway Age*, August 3, page 9.

(*Continued from page 88*)

tronics. Among other developments referred to are the following:

- A radar-type device for measuring the speed of cars or cuts of cars passing down the hump and through retarders and switches has been installed in classification yards on the Southern.
- Manual block signals at unattended locations can now be controlled from remote offices by the application of carrier (high-frequency energy superimposed on line wires). Complete controls and return of indications are available in the new system.
- A weight detector and electronic speed measuring and retarder control system has been developed by the General Railway Signal Company and may be applied to any G.R.S. retarder system without modification of the retarder structure.

LET'S LOOK AHEAD FOR BETTER PRODUCTS AND PRACTICES

. . . says Chairman Troth

"I believe in looking ahead. We have a responsibility to ourselves and to our respective managements, to be constantly on the alert for improved equipment and improved methods, even to the extent of proposing changes in established practices. The development of centralized traffic control is a striking example of how a signal system can modify methods of train operation.

"What the future will bring in the art of signaling is anyone's guess, but I believe it is reasonable to expect that all main lines will eventually be equipped with C. T. C., and all large classification yards equipped with car retarders, possibly accomplishing some of these improvements by methods not available today.

"We think our present equipment and controls are good and they have been proven so in actual operation; however, let's not close our eyes to a better way of accomplishing the purpose of signaling. An old axiom is that man can finally accomplish anything he can imagine. The manufacturers of signal equipment have done and are continuing to do a wonderful job, and a lot of progress has been made in the past years, but there is still plenty of room for improvement in making more dependable apparatus and in keeping the cost down to where installations will be economically justified.

"We have depended on the manufacturers to take care of practically all signal research and development, which in no small way has contributed to the cost of equipment, and rightfully so. We are now proposing, however, to give them assistance along that line."

TECHNICAL ADVANCES AND WESTINGHOUSE AIR BRAKE FILM

. . . lauded by R. G. May

"The railroads have steadily made improvements in automatic signals, automatic train control, cab signals, and centralized traffic control. The economies as a result of the development of C. T. C. perhaps have not yet been fully realized. We know it has permitted a reduction in the number of interlockings, allowed closer meets of opposing trains, and in general has provided more flexibility of operations. Further economies can be expected from increased speeds and reduced mileage of track to be maintained.

"Most studies made by individual railroads of possible reductions of track mileage have considered only their own properties. Possibly parallel routes of competitive roads will be studied to make full use of not only tracks but other facilities, such as stations and parking areas. Any such development naturally will encompass considerable signal engineering.

"The National Safety Council, the A.A.R. Safety Section, many state highway commissions and automobile associations have carried on vigorous campaigns to reduce the number of highway crossing accidents. The direct cost in damage to equipment, signals and track is generally a substantial item, but train delays, impaired service and aroused public sentiment cannot be estimated in terms of dollars. Our obligation is to keep abreast of any new developments in the field of signaling, to properly maintain present devices, and to assist all interested agencies in their educational programs."

Mr. May followed his remarks by introducing the Westinghouse Air Brake Company's new color-sound motion picture, "At This Moment." The scene of this story is a restaurant where railroad men are the principal customers. In ordinary conversation the actors tell in facts and figures the part the railroads play in moving freight and passengers as the major means of transportation in America today. To illustrate the story, the cameras focus on yards, terminals and right-of-way to show the railroads at work. This film had its premiere showing at a meeting in Pittsburgh, September 25, of officers and directors of the A.A.R. as reported elsewhere in this issue. Mr. May realized that the film dramatically emphasized the theme of his address, and therefore he was responsible for bringing the film to St. Louis so the Signal Section witnessed its first open showing.

Who's in charge around your shops when the temperature plunges and snow covers the ground—you or your equipment? If you have off-track equipment that can only produce in ideal weather conditions, the answer is—your equipment.

That's why it's important to winterize your jobs now—with Caterpillar machines. In the picture, you see how Great Northern Railroad did just that near Wenatchee, Wash. A Caterpillar D8 Tractor and 'dozer is moving 100 yards of riprap hourly to a stockpile. Winter weather makes little difference.

Cat machines will work as long into the winter as you want to work. Their engines start at unbelievably low temperatures because they were designed to start in extreme weather. They are equipped with two-cylinder independent gasoline starting engines, which have proved their dependability in temperatures as low as –70° F.

And, naturally, rugged Cat machines have the strength to work both in frozen materials and muddy ground resulting from quick thaws.

Let your Caterpillar Dealer prove the advantages of winterizing your off-track jobs with his equipment. Just name the date.

Caterpillar Tractor Co., Peoria, Illinois.

CATERPILLAR*

*Both Cat and Caterpillar are registered trademarks—®

WINTERIZE YOUR JOB WITH CAT EQUIPMENT

Supply Trade

(Continued from page 18)
manager, at San Francisco, will supervise the entire west coast operation.

G. N. Dow, district representative of Leschen Wire Rope division of **H. K. Porter Company,** at Detroit, has been appointed Chicago district sales manager.

Irwin W. Preetorius, freight traffic consultant, has moved his office from Chicago to 766 Wilkinson avenue, Orlando, Fla.

The new location of the **M & J Diesel Locomotive Filter Corp.** is at 9381 Schiller boulevard, Franklin Park, Ill.

OBITUARY

William H. Gantt, retired assistant traffic manager of the Bethlehem Steel Company, died September 19 at his home in Bethlehem, Pa., after a long illness.

Equipment & Supplies

Domestic Equipment Orders Reported in September

Domestic orders for 1,892 freight-train cars and 30 diesel units were reported by individual purchaser in *Railway Age* in September. No domestic passenger-car orders were reported. Estimated cost of the freight-train cars is $11,262,000, and of the diesel units, $4,548,000. An accompanying table lists the orders in detail.

During the first nine months of 1953 *Railway Age* has reported domestic orders by individual purchaser for 985 diesel units costing an estimated $156,587,000; 17,507 freight-train cars costing an estimated $123,427,000; and 168 passenger-train cars costing an estimated $28,729,004.

FREIGHT CARS

The **Transportation Corps** has ordered 320 50-ton box cars from the Pullman-Standard Car Manufacturing Company.

MARINE

The **Pennsylvania** has ordered two diesel tugboats from the RTC Shipbuilding Corporation, Camden, N.J., for delivery late next year. The vessels, identical in design, will each be 110 ft. long with a 27-ft. beam and hull depth of 14 ft. The diesel engines will develop 1,600 horsepower.

Securities

Authorizations

ARKANSAS & LOUISIANA MISSOURI.—To issue unsecured promissory notes totaling $130,000. The renewable 4 per cent notes will go to two banks at Monroe, La., and proceeds received by the road will be used to pay off an indebtedness of $100,000, and to reimburse the road's treasury for purchase of a warehouse. The A&LM is controlled by Olin Industries.

WABASH.—To assume liability for $2,820,000 of series E equipment trust certificates, to finance in part 10 diesel units and 240 freight cars costing an estimated $3,525,164 *(Railway Age,* September 7, page 110). Division 4 approved sale of the certificates for 98.6143 with interest at 3⅛ per cent—the bid of Salomon Bros. & Hutzler and three associates—which will make the average annual cost of the proceeds to the road approximately 3.37 per cent. The certificates, dated September 1, will mature in 15 annual installments of $188,000 each, beginning September 1, 1954. They were reoffered to the public at prices yielding from 2.8 to 3.35 per cent, according to maturity.

Applications

WABASH-CHICAGO & EASTERN ILLINOIS.—To assume joint liability for $4,650,000 of secured guaranteed notes, and to sell such notes without competitive bidding. The notes would be issued by a new wholly owned subsidiary of the two roads, and proceeds from their sale would be used to purchase and expand the Rail to Water Transfer Corporation of Chicago. The notes, dated as issued, would be secured by a first mortgage on all property of the subsidiary company.

The Wabash and C&EI requested relief from competitive bidding requirements because the proposed notes are not a "normal type" of railroad security; because funds won't all be needed at the same time, and because of the generally unsettled condition of the market.

Dividends Declared

AKRON, CANTON & YOUNGSTOWN.—$2.50, payable October 1 to holders of record September 18.

ATCHISON, TOPEKA & SANTA FE.—$1.25, quarterly, payable December 3 to holders of record October 30.

CAROLINA, CLINCHFIELD & OHIO.—$1.25, quarterly, payable October 20 to holders of record October 9.

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS.—5% preferred, $1.25, quarterly, payable October 31 to holders of record October 7.

NORFOLK & WESTERN.—4% adjustment preferred, 25¢, quarterly, payable November 10 to holders of record October 16.

READING.—50¢, quarterly, payable November 12 to holders of record October 15.

Security Price Averages

	Sept. 29	Prev. Week	Last Year
Average price of 20 representative railway stocks	58.21	58.07	62.95
Average price of 20 representative railway bonds	89.73	89.35	92.66

Financial

Chicago, Rock Island & Pacific.—*Acquisition.*—This road has applied to the I.C.C. for authority to acquire the 106-mile section of the Wichita Falls & Southern which extends from Wichita Falls, Tex., to a point 2.6 miles south of Breckenridge. Already pending before the commission was a WF&S application for authority to abandon its entire 168.5-mile line, from Wichita Falls to Dublin, Tex. The Rock Island's plan for acquiring the Wichita Falls-Breckenridge segment contemplates that this would be accomplished by purchasing, for $575,000, all of the WF&S outstanding bonds, notes and stock. The plan also contemplates commission approval of the abandonment proposal, and the purchase price is based on the scrap value of the segment to be acquired plus a "reasonable" value of other real estate along that line. RI explained that operation of the line would be an experiment which it would carry on for three years on the theory that its "superior soliciting force" could bring profitable business to the line.

Delaware, Lackawanna & Western.—*Nickel Plate Directorships.*—A hearing in connection with this road's proposal to elect two members to the Nickel Plate's 15-man board of directors was held before Examiner Jerome K. Lyle of the I.C.C. in Washington, D.C., September 24 and 25. The hearing was on the Lackawanna's motion to dismiss the application it filed for commission approval of the proposed representation. The motion is based on a contention that the commission is without jurisdiction in the matter be-

(Continued on page 98)

Domestic Equipment Orders Reported In September

FREIGHT CARS

Purchaser	No.	Type	Issue Reported	Builder
B&O	12	Caboose	Sept. 21	R.R. Shops
CI&L	150	50-ton Hopper	Sept. 28	Pullman-Standard
	30	Covered Hopper*	Sept. 28	Pullman-Standard
Continental Blacks, Inc.	15	Covered Hopper	Sept. 14	Thrall Car
IC	100	70-ton Cov. Hopper	Sept. 14	Amer. Car & Fdy.
NYC	25	50-ton Box	Sept. 21	Pullman-Standard
NYNH&H	100	Flat**	Sept. 28	R.R. Shops
SAL	200	70-ton Hopper	Sept. 7	Bethlehem Steel
SP	1,250	50-ton Box	Sept. 14	R.R. Shops
WP	10	50-ton Box†	Sept. 21	Pullman-Standard

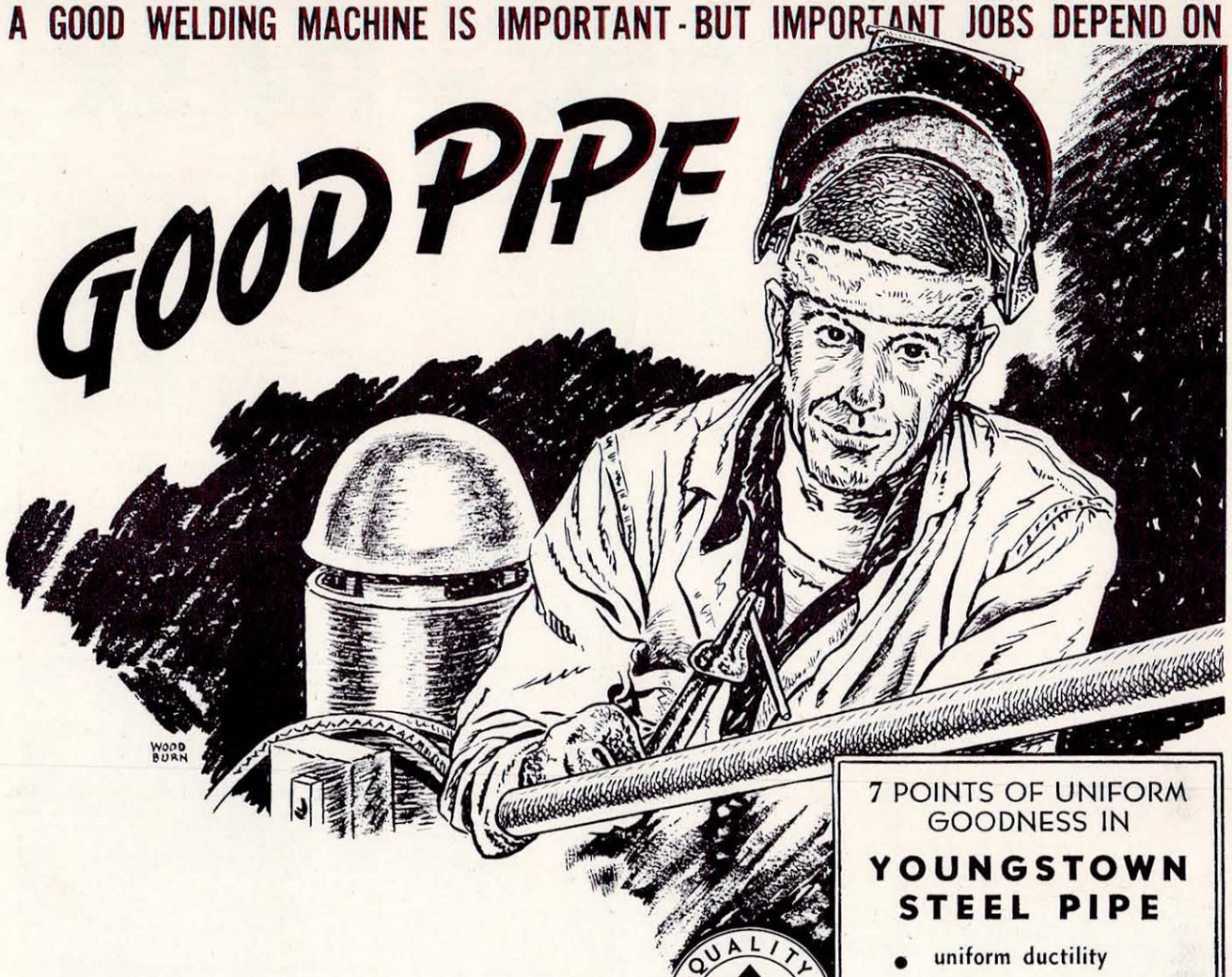
* To be equipped with air unloading system.
** For use in trailer-on-flat-car service.
† With cushion underframes.

LOCOMOTIVES

NP	10	1,500-hp. Rd.-Sw.	Sept. 28	Electro-Motive
	2	4-unit 6,000-hp. Frt.	Sept. 28	Electro-Motive
	1	3-unit 4,500-hp. Pass.	Sept. 28	Electro-Motive
	4	1,600-hp. Rd.-Sw.	Sept. 28	American-G.E.
	5	1,000-hp. Switching	Sept. 28	American-G.E.

A GOOD WELDING MACHINE IS IMPORTANT - BUT IMPORTANT JOBS DEPEND ON

GOOD PIPE



QUALITY
YOUNGSTOWN
SERVICE

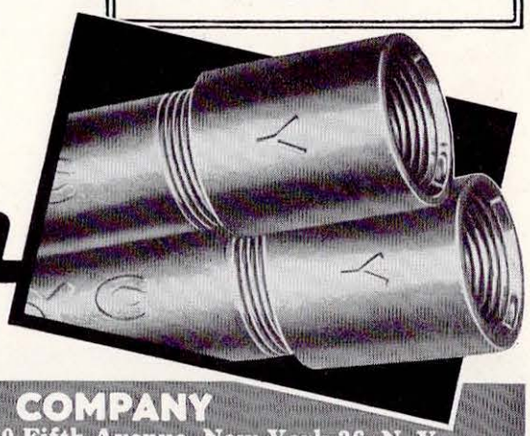
7 POINTS OF UNIFORM GOODNESS IN

YOUNGSTOWN STEEL PIPE

- uniform ductility
- uniform lengths
- uniform threading
- uniform weldability
- uniform wall thickness and size
- uniform strength and toughness
- uniform roundness and straightness

NO matter how intricate the weld, you do it readily with Youngstown pipe.

That's because Youngstown pipe is designed and made for easy welding—truly round, uniform in wall thickness, uniformly sized, and chemically and metallurgically right. The name "Youngstown" rolled into a length of pipe means it is GOOD PIPE.



Youngstown
STEEL PIPE

THE YOUNGSTOWN SHEET AND TUBE COMPANY
General Offices: Youngstown, Ohio - Export Office: 500 Fifth Avenue, New York 36, N. Y.
PIPE AND TUBULAR PRODUCTS - CONDUIT - BARS - RODS - COLD FINISHED CARBON AND ALLOY BARS - SHEETS - PLATES - WIRE - ELECTROLYTIC TIN PLATE - COKE TIN PLATE - RAILROAD TRACK SPIKES

SHELL "DIESELINE" with FOA-5X

eliminates the major cause of filter clogging . . .

RAILROAD OPERATORS are discovering for themselves how FOA-5X hits at the very core of filter clogging . . . prevents sludge formation on strainers, screens, and nozzles. Extensive tests show that with FOA-5X, constant pumping pressures are maintained and filter changes are kept at a minimum.

Shell "DIESELINE" contains FOA-5X, a product of Shell Research. It's another contribution to better operation and reduced maintenance of railroad diesel locomotive engines.

Shell "DIESELINE" with FOA-5X

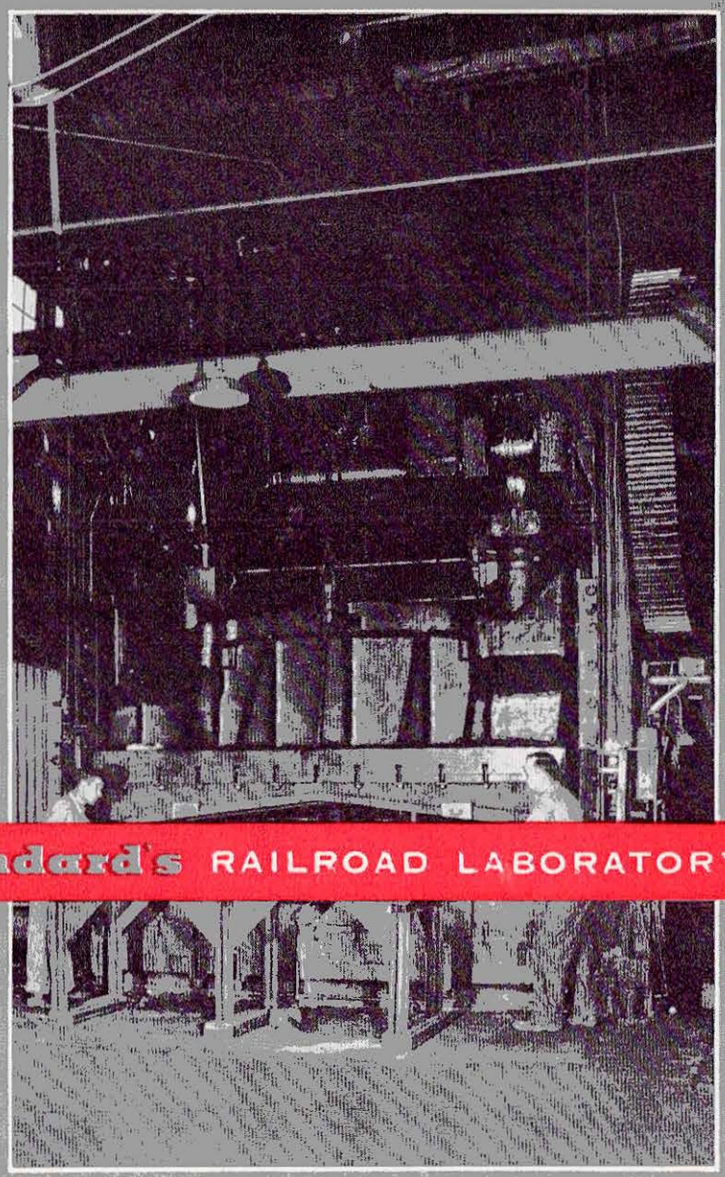
SHELL

the first steel roof

the finest steel roof

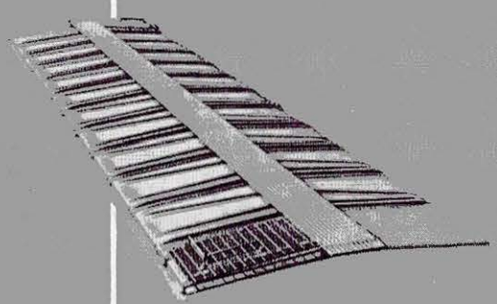
Many, many years ago, out of the minds of the men who conceived *Standard's* railroad laboratory came the idea for a metal watershed applied *beneath* the wooden roof as an added protection to lading. This was the forerunner of today's steel roof.

Later applied to the exterior, this metal roof, through constant improvement, became *Standard's Diagonal Panel Roof* with a much broader purpose than mere lading protection, for today it is a *structural* part of the car . . .



BOTH PRODUCTS OF Standard's RAILROAD LABORATORY

a powerful example of the value of *Standard's* railroad laboratory as an investment *for* and *in* the future of railroading.



Standard

RAILWAY EQUIPMENT MANUFACTURING COMPANY

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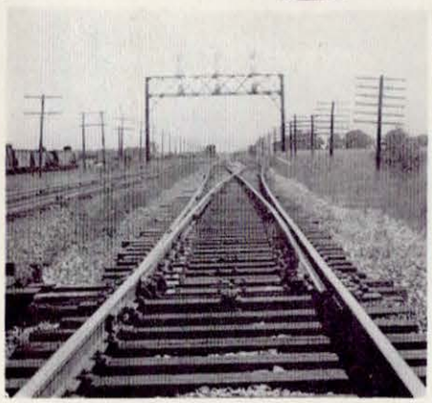
INTERNATIONAL
HIGH GRADE TREATED
TIES
5 C 3
The International Dating Brand



Today's high speeds and heavy wheel loads call for the best in ties — the "International" kind. Full-sized, scientifically treated under the supervision of graduate chemical engineers, these A.R.E.A. Specification Ties save on tie renewals and track maintenance. Specify them for a better, more economical track structure.

INTERNATIONAL CREOSOTING AND CONSTRUCTION CO.
Producers of Treated Ties, Poles, Piles, etc
GALVESTON-BEAUMONT
TEXARKANA

Table of Selected Income and Balance Sheet Items of Class I Railways for the month of June and six months of 1953 and 1952 appears on page 102.

(Continued from page 94)
cause the Lackawanna's proposal would not give it control of NKP. The latter's counsel, on the other hand, contended that the proposed representation would alter the present independent status of the road. The hearing will be resumed October 6.

New Facilities

Wabash-Chicago & Eastern Illinois.—These roads have asked the I.C.C. for authority to form a jointly owned subsidiary for the purpose of acquiring the Rail to Water Transfer Corporation at Chicago. The transfer corporation is located along the Calumet river, and its business is to transfer coal from rail cars to lake ships.

Acquisition by the two railroads is the first step in a program for expanding the transfer corporation's capacity. Cost of this expansion is expected to approach $4,000,000. It will boost capacity from around four million to seven million tons annually.

Expansion will include construction of a modified dock line on the Calumet river ($110,000); a new dock face along this dock line ($550,000), and acquisition and construction of "additional facilities" ($3,300,000). When the expansion is completed the facilities will be leased back to the transfer corporation for operation.

To finance this purchase and expansion the railroads would assume liability for $4,650,000 of secured guaranteed notes, and would subscribe, in addition, to $350,000 of capital stock of the new jointly owned subsidiary.

The Wabash and C&EI advised the I.C.C. that the application covering this proposal was filed for themselves and "such other carriers as may subsequently join in formal application."

Railway Officers

EXECUTIVE

D. S. Potcat, vice-president and auditor of the LEHIGH & HUDSON RIVER at Warwick, N.Y., has retired at his own request, after more than 46 years of railroad service, which includes 35 years with the L&HR. **Robert I. Huyler,** secretary and treasurer, has been elected vice-president, secretary and treasurer. Mr. Huyler entered L&HR service in 1905 as an office boy. He became assistant to secretary and treasurer in 1940 and secretary and treasurer in 1943.

The MANUFACTURERS RAILWAY, the ST. LOUIS & O'FALLON and the ST. LOUIS REFRIGERATOR CAR COMPANY have announced the voluntary retirement, on January 1, 1954, of **Arthur E. Wright,** president and general manager, after 42 years of service; **Alphonsus L. Browne,** vice-president—traffic, after 35 years of service; and **Raymond C. Harrison,** vice-president—operations, and corporate secretary, after 34 years of service. The following elections were also announced: **Ralph W. Schmidt,** president and general manager; **C. S. J. Flood,** vice-president—traffic, and assistant to president; and **T. E. Corcoran,** vice-president—accounting, and treasurer; and **Wilbur M. Daughtrey,** corporate secretary of Manufacturers and StL&O'F and manager of personnel of the three companies.

Vaile S. Andrus, assistant to president of the SOUTHERN PACIFIC at San Francisco, retired October 1.

FINANCIAL, LEGAL & ACCOUNTING

G. W. Brittingham, district claim agent of the NEW YORK CENTRAL at Toledo, has been appointed chief claim agent at Boston, succeeding **F. H. Lutton,** who retired September 30, after more than 45 years of continuous service with the NYC.

Daniel F. Borell, auditor freight traffic of the JERSEY CENTRAL LINES, has been appointed auditor revenues, a new position. **James R. Powers** and **Thomas F. Finnerty** have been named assistant auditors of revenues. Mr. Powers has been auditor passenger traffic and Mr. Finnerty assistant auditor freight traffic. Headquarters of all are at Jersey City, N.J.; their former positions have been abolished. The moves consolidate the road's freight and passenger accounting operations into a single unit and are designed to streamline handling of its accounting work.

Harold W. Quinlan, manager of the Union News Company's restaurant

YOU CAN WIN $100!

Last week's issue announced a *Railway Age* essay contest, open to all subscribers, for the best paper submitted on the relation of the accounting department to other branches of railroading. Although the contest is open to subscribers in all departments, accounting people are especially urged to participate. The contest closes November 26. See last week's *Railway Age*, page 25, for complete details.

division at New York and former passenger traffic manager of the NEW HAVEN, has been named general auditor of the LEHIGH & HUDSON RIVER, to perform the duties of the office held as auditor by **D. S. Poteat,** who is retiring. Mr. Quinlan was born at Somerville, Mass., April 6, 1900, and was graduated from Harvard University (A.B., 1922) and Harvard Business

Harold W. Quinlan

School (M.B.A., 1925). He entered railroad service in the accounting department of the Boston & Maine in September 1925, joining the New Haven in 1928 as statistician. He later served in the dining car department as chief clerk, assistant superintendent, superintendent and manager, becoming assistant manager personnel in October 1945 and passenger traffic manager in July 1946. He left the New Haven in 1950 and has since been manager of the Union News Company's restaurant division.

OPERATING

Thomas J. Gilheany has been appointed assistant to general superintendent transportation of the DELAWARE & HUDSON at Albany, N.Y., succeeding **Philip W. Young,** promoted.

J. L. Hayes, assistant superintendent, New York division, of the PENNSYLVANIA, has been appointed superintendent passenger transportation, Central region, at Pittsburgh, succeeding **A. M. Seivard,** who has been granted a leave of absence pending retirement. **Lawrence C. Neff,** superintendent of motor service in the office of manager of stations and motor service at Philadelphia, succeeds Mr. Hayes as assistant superintendent, New York division.

Willis L. Elliott, night trainmaster of the Illinois Central at New Orleans, has been appointed to the newly created position of assistant superintendent of the CHICAGO & WESTERN INDIANA at Chicago.

E. R. Phelps, manager and general freight and passenger agent of the TOOELE VALLEY, at Salt Lake City, has retired at his own request, after completing 47 years of service with a number of railroads, including the Oregon Short Line; the San Pedro, Los Angeles & Salt Lake; the Los Angeles & Salt Lake (all now Union Pacific) and the Denver & Rio Grande Western.

TRAFFIC

G. F. Morrison, supervisor perishable traffic and weighing of the CANADIAN PACIFIC at Winnipeg, retired August 31 and has been succeeded by **A. R. Napper.**

G. F. Mueller, assistant division freight agent of the SANTA FE at Dallas, Tex., has been named division freight agent at Houston, succeeding **Raymond N. Jarl,** who has been named assistant general freight agent there.

A. W. Dreutz, assistant to general passenger agent of the MILWAUKEE, has been appointed assistant to passenger traffic manager at Chicago, succeeding **R. A. Klotz,** who died recently. Named to replace Mr. Dreutz is **John K. Pain,** district passenger agent at Seattle, Wash., who in turn has been succeeded by **M. P. Burns,** transferred from Tacoma. **A. J. Knaff,** city passenger agent at Tacoma, Wash., has been appointed district passenger agent there, succeeding Mr. Burns.

Walter G. Freeman has been appointed general agent of the WABASH at Toronto, succeeding **J. C. Law,** who died recently.

George L. Bryson, passenger traffic manager of the United States lines of the CANADIAN NATIONAL at Chicago, retired September 30.

W. C. Sawyer has been appointed foreign freight traffic manager of the NORFOLK & WESTERN, with offices at New York and Norfolk. The position of general foreign freight agent at New York, formerly held by Mr. Sawyer, has been abolished.

PURCHASES & STORES

Harry I. Greves, price clerk of the LACKAWANNA, has been appointed stationer at New York, succeeding **Ralph L. Newcome,** deceased.

John Eaton, general purchasing agent of the CANADIAN PACIFIC at Montreal, has retired after 48 years of service. **T. A. Donovan,** assistant general purchasing agent at Montreal, has been appointed acting general purchasing agent.

SIGNALING & COMMUNICATIONS

John T. Van Loon, signal supervisor of the SOUTHERN PACIFIC at West Oakland, Cal., has been appointed assistant signal engineer at San Francisco, succeeding **A. C. Krout,** whose promotion to principal assistant engineer was reported in *Railway Age* August 17.

Charles J. Mullen, signal engineer of the General Railway Signal Company, has been appointed supervisor signals and communications of the CENTRAL VERMONT at St. Albans, Vt., succeeding **Edward D. Constantine,** who will retire on pension October 10, after 36 years of service.

OBITUARY

Ralph L. Newcome, stationer of the LACKAWANNA at New York, died September 21.

A. S. Jennings, western freight traffic manager of the PENNSYLVANIA at Chicago, died September 20.

George W. Webster, former president of the SOO LINE, died recently, following a long illness, at Minneapolis.

G. C. Brown, 72, who retired in September 1947 as division superintendent of the GULF, MOBILE & OHIO at Slater, Mo., died September 28.

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Meetings & Conventions

The following list gives names and addresses of secretaries, and dates and places of next or regular meetings.

AIR BRAKE ASSOCIATION.—Lawrence Wilcox, Room 827, 80 E. Jackson Blvd., Chicago 4.

ALLIED RAILWAY SUPPLY ASSOCIATION.—C. F. Weil, P. O. Box 5522, Chicago 80.

AMERICAN ASSOCIATION OF BAGGAGE TRAFFIC MANAGERS.—T. R. Stanton, 1450 Railway Exchange Bldg. St. Louis 1. Annual meeting, June 15-17, 1954, Edgewater Beach Hotel, Chicago.

AMERICAN ASSOCIATION OF PASSENGER RATE MEN.—William Bina, Atchison, Topeka & Santa Fe, 80 E. Jackson Blvd., Chicago 4.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—B. D. Branch, Eastern Time Table Distributing Company, Liberty Street Terminal, New York 6. Annual meeting, October 12-14, 1953, French Lick Springs, Ind.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—Miss Elise La Chance, Room 901, 431 S. Dearborn St., Chicago 5. Annual meeting, June 8-10, 1954, Hotel La Salle, Chicago.

AMERICAN ASSOCIATION OF TRAVELING PASSENGER AGENTS.—C. A. Melin, P. O. Box 5025, Cleveland 2.

AMERICAN COUNCIL OF RAILROAD WOMEN.—Eleanor Runquist, Pullman Company, Merchandise Mart Plaza, Chicago 54. Annual meeting, October 26-28, 1953, Broadmoor Hotel, Colorado Springs, Colo.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.— Miss Elise La Chance, Room 901, 431 S. Dearborn St., Chicago 5.

AMERICAN RAILWAY CAR INSTITUTE.—W. C. Tabbert, 19 E. 47th St., New York 17.

AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.—D. M. Lynn, Erie, 514 Republic Bldg., Cleveland 15. Annual meeting, May 17-19, 1954, Salt Lake City.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—Works in cooperation with the Association of American Railroads, Engineering Division—Neal D. Howard, 59 E. Van Buren St., Chicago 5. Annual meeting, March 16-18, 1954, Palmer House, Chicago.

AMERICAN RAILWAY MAGAZINE EDITORS ASSOCIATION.—T. J. Zirbes Jr., Rock Island Lines News Digest, La Salle Street Station, Chicago 5. Annual meeting, October 7-9, 1953, St. Charles Hotel, New Orleans.

AMERICAN SHORT LINE RAILROAD ASSOCIATION.—C. E. Huntley, 2000 Massachusetts Ave., N. W., Washington 6, D. C.

AMERICAN SOCIETY FOR TESTING MATERIALS.—R. J. Painter, 1916 Race St., Philadelphia 3. Spring meeting, February 1-5, 1954, Shoreham Hotel, Washington, D. C. Annual meeting, June 14-18, 1954, Sherman and Morrison Hotels, Chicago.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—C. E. Davies, 29 W. 39th St., New York 18. Annual meeting, November 29-December 4, 1953, Statler Hotel, New York.

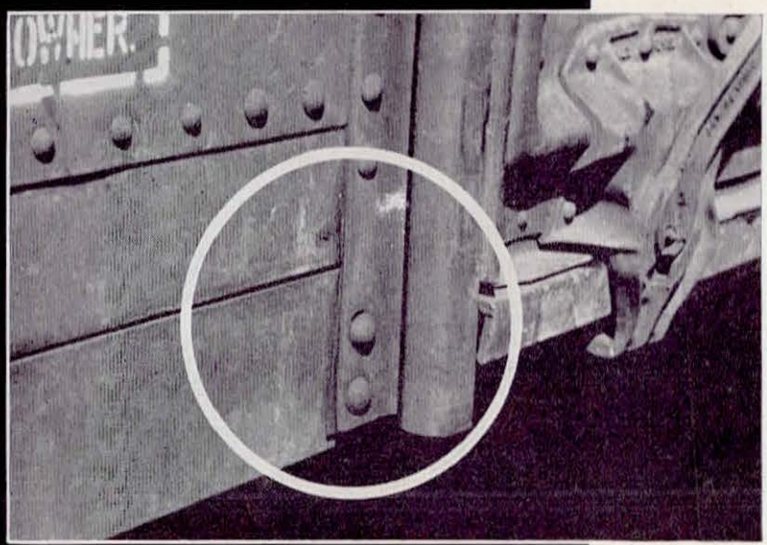
RAILROAD DIVISION.—E. L. Woodward, *Railway Locomotives and Cars*, 79 W. Monroe St., Chicago 3.

AMERICAN WOOD-PRESERVERS' ASSOCIATION.—W. A. Penrose, 839 Seventeenth St., N. W., Washington 6,

(Continued on page 102)

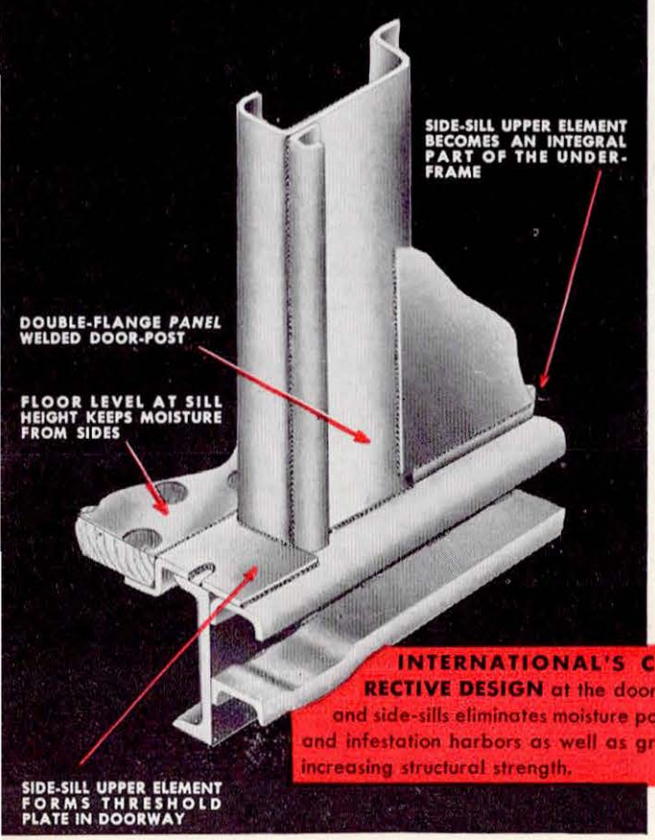
International

NEW PRECISION IN FREIGHT CAR CONSTRUCTION



Fracture and Progressive Separation at Door Post.

SCHEDULES GET FASTER AND FASTER...


SIDE-SILL UPPER ELEMENT BECOMES AN INTEGRAL PART OF THE UNDER-FRAME
DOUBLE-FLANGE *PANEL* WELDED DOOR-POST
FLOOR LEVEL AT SILL HEIGHT KEEPS MOISTURE FROM SIDES
SIDE-SILL UPPER ELEMENT FORMS THRESHOLD PLATE IN DOORWAY

INTERNATIONAL'S CORRECTIVE DESIGN at the door-post and side-sills eliminates moisture pockets and infestation harbors as well as greatly increasing structural strength.

NO ONE CONSIDERS HOLDING A SCHEDULE DOWN TO MATCH OUT-DATED CARS—*THEY EXPECT CAR DESIGN AND CONSTRUCTION TO MATCH TODAY'S PACE!*

Progress is impatient—it has no use for those who lag behind. PROGRESS IS JUST WHAT THE NAME IMPLIES—and it *will* keep moving forward with a relentless pace. The only solution is to *keep moving with it. International Steel's new precision* in design and construction is staying a step ahead! Cars and components such as sides, underframes, doors, etc., designed or constructed by *International will never hold down a schedule*—nor will they be out of service for repairs due to inadequate design or out-dated construction! *An International car is on the line . . . all the time!*

INTERNATIONAL STEEL COMPANY RAILWAY DIVISION

EVANSVILLE 7, INDIANA

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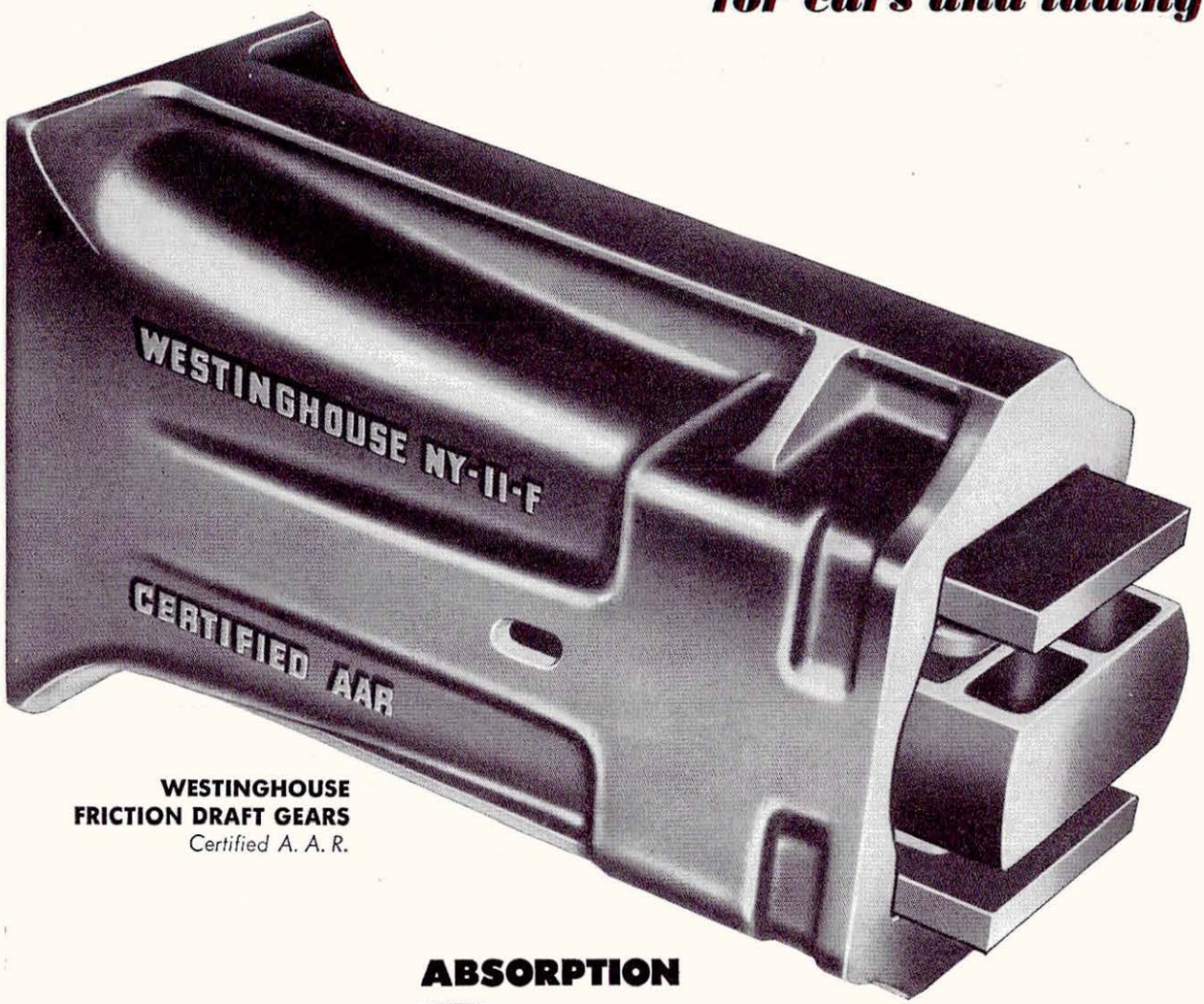
for cars and lading



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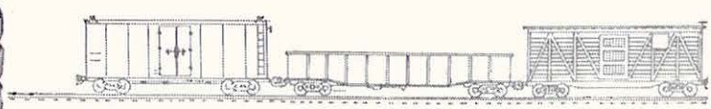
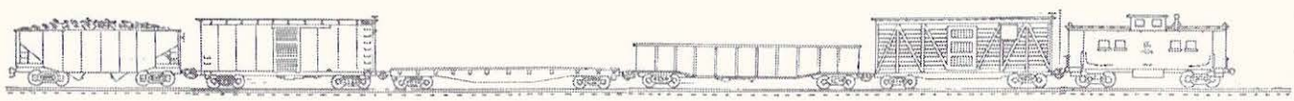
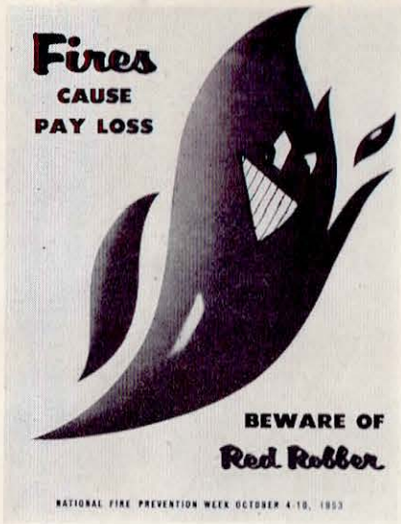




Cardwell Westinghouse Co., Chicago
Canadian Cardwell Co., Ltd., Montreal

287R



(Continued from page 99)

D. C. Annual meeting, April 26-28, 1954, Chalfonte-Haddon Hall, Atlantic City.

ASSOCIATED TRAFFIC CLUBS OF AMERICA.—R. A. Ellison, Cincinnati Chamber of Commerce, 1203 Federal Reserve Bank Bldg., Cincinnati 2.

ASSOCIATION OF AMERICAN RAILROAD DINING CAR OFFICERS.—P. E. Griffith, Wabash, Railway Exchange Bldg., St. Louis 1. Annual meeting, October 15-16, 1953, Jung Hotel, New Orleans.

ASSOCIATION OF AMERICAN RAILROADS.—George M. Campbell, Transportation Bldg., Washington 6, D. C.

Operations and Maintenance Department.—R. G. May, Vice-president, Transportation Bldg., Washington 6, D. C.

Operating-Transportation Division.—A. I. Ciliske, 59 E. Van Buren St., Chicago 5.

Operating Section.—H. S. Dewhurst, 59 E. Van Buren St., Chicago 5.

Transportation Section.—H. A. Eaton, 59 E. Van Buren St., Chicago 5.

Communications Section.—A. H. Grothmann, 59 E. Van Buren St., Chicago 5. Annual meeting, October 20-22, 1953, Hotel Plaza, San Antonio, Tex.

Fire Protection and Insurance Section.—W. E. Todd, 59 E. Van Buren St., Chicago 5. Annual meeting, October 12-14, 1953, Hotel Statler, St. Louis.

Freight Loss and Damage Prevention Section.—G. H. Ruhle, 59 E. Van Buren St., Chicago 5.

Freight Station Section.—W. E. Todd, 59 E. Van Buren St., Chicago 5. Annual meeting, May 4-6, 1954, Cleveland.

Medical and Surgical Section.—H. S. Dewhurst, 59 E. Van Buren St., Chicago 5. Annual meeting, March 26-27, 1954, General Oglethorpe Hotel, Savannah, Ga.

Protective Section.—H. S. Dewhurst, 59 E. Van Buren St., Chicago 5. Annual meeting, May 25-27, 1954, Bellevue-Stratford Hotel, Philadelphia.

Safety Section.—H. S. Dewhurst, 59 E. Van Buren St., Chicago 5. Annual meeting, June 15-17, 1954, Hotel Statler, Buffalo.

Electrical Section of the Engineering and Mechanical Divisions.—S. W. Marras, 59 E. Van Buren St., Chicago 5. Annual meeting, June 29-July 1, 1954, Hotel Sherman, Chicago.

Engineering Division.—E. G. Gehrke, 59 E. Van Buren St., Chicago 5.

Construction and Maintenance Section.—Neal D. Howard, 59 E. Van Buren St., Chicago 5. Annual meeting, March 16-18, 1954, Palmer House, Chicago.

Signal Section.—R. H. C. Balliet, 59 E. Van Buren St., Chicago 5.

Mechanical Division.—Fred Peronto, 59 E. Van Buren St., Chicago 5. Annual meeting, June 29-July 1, 1954, Hotel Sherman, Chicago.

Purchases and Stores Division.—John L. Timanus, Transportation Bldg., Washington 6, D. C.

Freight Claim Division.—C. C. Beauprie, 59 E. Van Buren St., Chicago 5.

General Claims Division.—F. L. Johnson, Gulf, Mobile & Ohio, 104 St. Francis St., Mobile 5, Ala.

Car Service Division.—Arthur H. Gass, Chairman, Transportation Bldg., Washington 6, D. C.

Finance, Accounting, Taxation and Valuation Department.—Arthur R. Seder, Vice-president, Transportation Bldg., Washington 6, D. C.

Accounting Division.—R. E. Keefer, Transportation Bldg., Washington 6, D. C. Annual meeting, May 24-27, 1954, Shoreham Hotel, Washington, D. C.

Treasury Division.—R. E. Keefer, Transportation Bldg., Washington 6, D. C. Annual meeting, September 6-9, 1954, The Greenbrier, White Sulphur Springs, W. Va.

Traffic Department.—Walter J. Kelly, Vice-president, Transportation Bldg., Washington 6, D. C.

ASSOCIATION OF INTERSTATE COMMERCE COMMISSION PRACTITIONERS.—Miss Sarah F. McDonough, Executive Secretary, 2218 I.C.C. Building, Washington 25, D.C.

ASSOCIATION OF RAILROAD ADVERTISING MANAGERS.—A. W. Eckstein, Asst. Secy., Illinois Central, 135 E. Eleventh Pl., Chicago 5. Annual meeting, January 28-30, 1954, Jung Hotel, New Orleans.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—F. L. Johnson, Gulf, Mobile & Ohio, 104 St. Francis St., Mobile 5, Ala. Annual meeting, May 26-28, 1954, Hotel Statler, Los Angeles.

BRIDGE AND BUILDING SUPPLY ASSOCIATION.—L. R. Gurley, Modern Railroads, 201 N. Wells St., Chicago 6.

CANADIAN RAILWAY CLUB.—C. R. Crook, P. O. Box 162, Montreal 3, Que. Regular meetings, second Monday of each month, except June, July and August, Mount Royal Hotel, Montreal, Que.

CAR DEPARTMENT ASSOCIATION OF ST. LOUIS.—D. W. Kramer, 7207 W. Main, Belleville, Ill. Regular meetings fourth Tuesday of each month except June, July and August, Hotel DeSoto.

CAR DEPARTMENT OFFICERS' ASSOCIATION.—F. H. Stremmel, 6536 Oxford Ave., Chicago 31.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—W. R. McCain, Mather Stock Car Company, 326 N. Michigan Ave., Chicago 1. Regular meetings, second Monday of each month, except June, July and August, LaSalle Hotel.

CENTRAL RAILWAY CLUB OF BUFFALO.—R. E. Mann, Hotel Statler, McKinley Square, Buffalo 5. Regular meetings, second Thursday of each month except June, July and August, Hotel Statler.

EASTERN ASSOCIATION OF CAR SERVICE OFFICERS.—H. C. Rochester, Canadian National, 891 Notre Dame St., West, Montreal 3, Que. Next meeting, November 12-13, 1953, St. Moritz Hotel, New York.

EASTERN CAR FOREMAN'S ASSOCIATION.—W. P. Dizard, 30 Church St., New York 7. Regular meetings, second Friday of January, February, March, April, May, October and November, 29 W. 39th St., New York.

LOCOMOTIVE MAINTENANCE OFFICERS' ASSOCIATION.—C. M. Lipscomb, 1721 Parker St., North Little Rock, Ark.

MAINTENANCE OF WAY CLUB OF CHICAGO.—E. C. Patterson, 400 W. Madison St., Chicago 6. Regular meetings, fourth Monday of each month, October through April inclusive, except December, which is third Monday, at Eitel's Restaurant, Field Bldg.

MASTER BOILER MAKERS' ASSOCIATION.—A. F. Stiglmeier, 29 Parkwood St., Albany 8.

METROPOLITAN MAINTENANCE OF WAY CLUB.—John S. Vreeland, Simmons-Boardman Publishing Corp., 30 Church St., New York 7. Meets in February, April, October and December. Next meeting, October 29, 1953, Hotel Shelbourne, New York.

MILITARY RAILWAY SERVICE VETERAN'S.—J. E. McNamara, 332 S. Michigan Ave., Chicago 4.

MISSISSIPPI VALLEY MAINTENANCE OF WAY CLUB.—P. E. Odom, 1025 Frisco Building, 906 Olive St., St. Louis. Regular meetings, second Monday of each month September through May, DeSoto Hotel, St. Louis.

Selected Income and Balance-Sheet Items of Class I Steam Railways in the United States

Compiled from 126 reports (Form IBS) representing 130 steam railways

(Switching and Terminal Companies Not Included)

Income Items	United States For the month of June 1953	1952	For the six months of 1953	1952
1. Net railway operating income	$99,672,830	$68,100,110	$548,696,767	$442,563,172
2. Other income	20,210,605	25,188,434	111,650,957	107,286,608
3. Total income	119,883,435	93,288,544	660,347,724	549,849,780
4. Miscellaneous deductions from Income	3,962,591	3,776,772	24,535,371	24,659,471
5. Income available for fixed charges	115,920,844	89,511,772	635,812,353	525,190,309
6. Fixed charges:				
6-01. Rent for leased roads and equipment	6,486,395	6,476,145	37,623,495	39,273,582
6-02. Interest deductions[1]	27,158,663	26,466,277	162,778,755	158,203,060
6-03. Amortization of discount on funded debt	278,921	258,842	1,497,659	1,463,056
6-04. Total fixed charges	33,923,979	33,201,264	201,899,909	198,939,698
7. Income after fixed charges	81,996,865	56,310,508	433,912,444	326,250,611
8. Other deductions	2,764,607	2,882,097	16,807,381	17,438,448
9. Net income	79,232,258	53,428,411	417,105,063	308,812,163
10. Depreciation (Way and structures and Equipment)	42,591,512	40,260,409	248,780,155	237,845,783
11. Federal income taxes	58,692,592	31,693,146	315,635,000	266,814,210
12. Dividend appropriations:				
12-01. On common stock	17,406,286	19,153,711	124,677,514	113,435,332
12-02. On preferred stock	6,300,712	2,716,753	45,348,361	41,126,870
Ratio of income to fixed charges (Item 5 ÷ 6—04)	3.42	2.70	3.15	2.64

Selected Expenditure and Asset Items	United States Balance at end of June 1953	1952
17. Expenditures (gross) for additions and betterments—Road	$180,174,570	$180,018,710
18. Expenditures (gross) for additions and betterments—Equipment	464,508,844	539,196,073
19. Investments in stocks, bonds, etc., other than those of affiliated companies (Total, Account 707)	457,085,737	482,528,141
20. Other unadjusted debits	94,217,753	106,918,448
21. Cash	875,345,551	806,951,318
22. Temporary cash investments	879,287,626	820,544,413
23. Special deposits	92,163,086	89,281,098
24. Loans and bills receivable	636,561	1,156,768
25. Traffic and car-service balances—Dr.	70,310,490	58,383,156
26. Net balance receivable from agents and conductors	179,754,145	154,545,216
27. Miscellaneous accounts receivable	358,933,596	396,537,070
28. Materials and supplies	833,256,060	904,853,069
29. Interest and dividends receivable	11,190,245	14,582,534
30. Accrued accounts receivable	224,242,258	221,859,697
31. Other current assets	35,941,156	33,947,138
32. Total current assets (items 21 to 31)	3,561,060,774	3,502,641,477
Selected Liability Items		
40. Funded debt maturing within 6 months[2]	$156,313,472	$154,354,165
41. Loans and bills payable[3]	2,808,267	4,248,381
42. Traffic and car-service balances—Cr.	104,529,951	103,116,110
43. Audited accounts and wages payable	529,061,020	545,474,399
44. Miscellaneous accounts payable	218,257,267	216,549,251
45. Interest matured unpaid	47,581,193	49,820,195
46. Dividends matured unpaid	18,677,892	19,363,935
47. Unmatured interest accrued	66,846,041	63,073,596
48. Unmatured dividends declared	23,278,103	20,754,340
49. Accrued accounts payable	221,840,871	250,051,309
50. Taxes accrued	768,106,277	757,455,088
51. Other current liabilities	97,161,971	96,072,124
52. Total current liabilities (items 41 to 51)	2,098,148,853	2,125,978,728
53. Analysis of taxes accrued:		
53-01. U. S. Government taxes	582,779,732	573,113,837
53-02. Other than U. S. Government taxes	185,326,545	184,341,251
54. Other unadjusted credits	277,718,510	298,099,845

[1] Represents accruals, including the amount in default.
[2] Includes payments of principal of long-term debt (other than long-term debt in default) which becomes due within six months after close of month of report.
[3] Includes obligations which mature not more than one year after date of issue.
Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission.
Subject to revision.

National Association of Railroad and Utilities Commissioners.—Austin L. Roberts, Jr., 7413 New Post Office Bldg., P. O. Box 684, Washington 4, D. C.

National Association of Shippers' Advisory Boards.—J. W. Witherspoon, U. S. Rubber Company, 5675 East Anaheim-Telegraph Road, Los Angeles 22. Annual meeting October 6-8, 1953, Hotel Fontenelle, Omaha, Neb.

National Defense Transportation Association.—Mrs. Lois C. Gebran, 1001 Connecticut Ave., Washington, D. C., Annual meeting, October 11-13, 1953, Brown Hotel, Louisville, Ky.

National Industrial Traffic League.—L. J. Dorr, 909 Sheraton Bldg., Washington 5, D. C. Annual meeting, November 19-20, 1953, Jung Hotel, New Orleans.

National Railway Appliances Association.—J. B. Templeton, Templeton, Kenly & Co., 1020 S. Central Ave., Chicago 44. Lewis Thomas, Asst. Secy., 59 E. Van Buren St., Chicago 5.

National Safety Council, Railroad Section.—F. R. Callahan, Pullman Co., Merchandise Mart Plaza, Chicago 54. Annual meeting, October 20-22, 1953, Morrison Hotel, Chicago.

New England Railroad Club.—William M. McCombs, 35 Lewis Wharf, Boston 10. Regular meetings, second Tuesday of each month, except May-September, incl. Hotel Vendome, Boston.

New York Railroad Club.—C. T. Stansfield, 30 Church St., New York 7. Regular meetings, third Thursday of each month except June, July, August, September and December. Century Room, Commodore Hotel. Reception, 6 p.m.; dinner, 7; meeting, 8:15.

Northwest Carmen's Association.—G. H. Wells, Northern Pacific, St. Paul 1, Minn. Regular meetings, first Monday of each month, except June, July, and August, Midway Club, 1931 University Ave., St. Paul.

Northwest Locomotive Association.—R. M. Wigfield, Northern Pacific, Room 1134, G. O. Bldg., St. Paul 1, Minn. Regular meetings, third Monday of each month, except June, July and August, Midway Club, 1931 University Ave., St. Paul.

Pacific Railway Club.—S. E. Byler, 121 E. Sixth St., Los Angeles 14. Regular meetings, second Thursday of each alternate month at Sir Francis Drake Hotel, San Francisco, and Elks' Temple, Los Angeles.

Railroad Public Relations Association.—J. Don Parel, Association of American Railroads, Transportation Bldg., Washington 6, D. C.

Railway Business Association.—P. H. Middleton, 38 S. Dearborn St., Chicago 3. Annual meeting and dinner, November 20, 1953, Conrad Hilton Hotel, Chicago.

Railway Club of Pittsburgh.—G. E. Morrison, 2710 Koppers Bldg., Pittsburgh 19. Regular meetings third Thursday of each month, except June-September, incl., and December, Fort Pitt Hotel.

Railway Electric Supply Manufacturers' Association.—J. McC. Price, Allen-Bradley Company, 445-447 N. LaSalle St., Chicago 10.

Railway Fuel and Traveling Engineers' Association.—L. H. Peters, New York Central, Room 1213, 139 W. Van Buren St., Chicago 5.

Railway Supply Manufacturers' Association.—A. W. Brown, 60 E. 42nd St., New York 17.

Railway Systems and Procedures Association.—J. W. Milliken, *Railway Age*, 30 Church St., New York 7. Next meeting, November 4-6, 1953, Palmer House, Chicago.

Railway Telegraph and Telephone Appliance Association.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York 7. Meets with Communications Section of A.A.R.

Railway Tie Association.—Roy M. Edmonds, 1221 Locust St., St. Louis 3. Annual meeting, October 14-16, 1953, Biltmore Hotel, Atlanta.

Roadmasters and Maintenance of Way Association.—Miss Elsie La Chance, Room 901, 431 S. Dearborn St., Chicago 5.

St. Louis Railroad Diesel Club.—F. C. Whitlock, Terminal Railroad Association of St. Louis, 376 Union Station, St. Louis 3. Regular meetings, second Tuesday of each month, Hotel York. Dinner, 6:45 p.m., meeting, 8.

Signal Appliance Association.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York 7. Meets with A.A.R. Signal Section.

Southeastern Railway Diesel Club.—H. W. Brewer, Seaboard Air Line, P. O. Box 6204, Jacksonville, Fla. Regular meetings, second Tuesday in February, April, June, August, October and December, 9:30 a.m., Mayflower Hotel, Jacksonville.

Southern and Southwestern Railway Club.—A. T. Miller, 4 Hunter St., S. E., Atlanta. Regular meetings, third Thursday in January, March, May, July, September and November, Ansley Hotel, Atlanta.

Southern Association of Car Service Officers.—F. I. Umhau, Southern Ry., Atlanta 3.

Toronto Railway Club.—J. A. North, P.O. Box 8, Terminal "A," Toronto 2, Ont. Regular meetings, fourth Monday of each month, except February, June, July, August and December, Royal York Hotel.

Track Supply Association.—Lewis Thomas, Q and C Company, 59 E. Van Buren St., Chicago 5.

Western Association of Railway Tax Commissioners.—M. L. Boydston, 516 W. Jackson Blvd., Chicago 6. Regular meetings, 12:15, p.m. first Wednesday of each month, except July and August, Traffic Club, Palmer House, Chicago.

Western Railway Club.—E. E. Thulin, Suite 339, Hotel Sherman, Chicago 1. Regular meetings, October 19; November 9; December 19, 1953, February 15; March 22; April 19; May 17, 1954.

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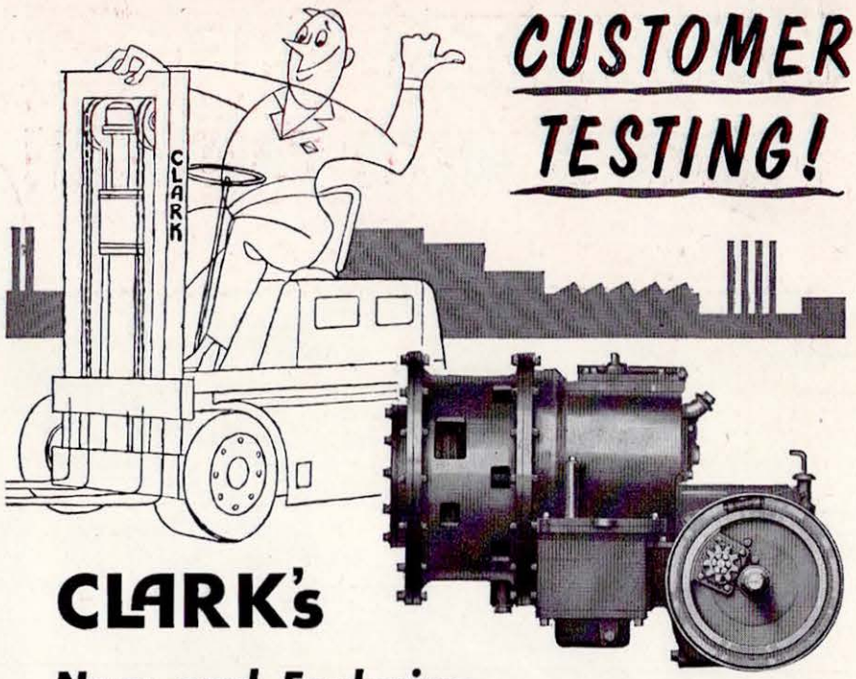

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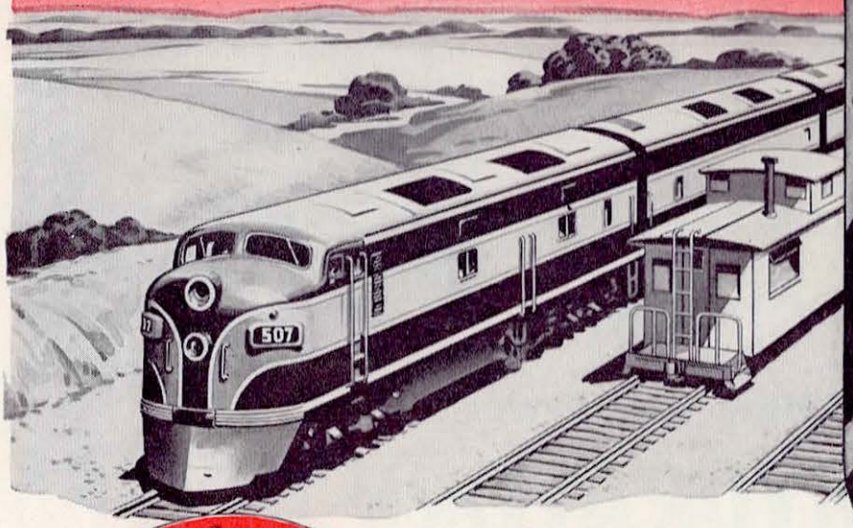

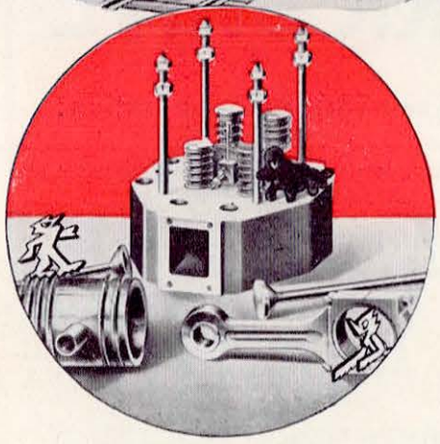

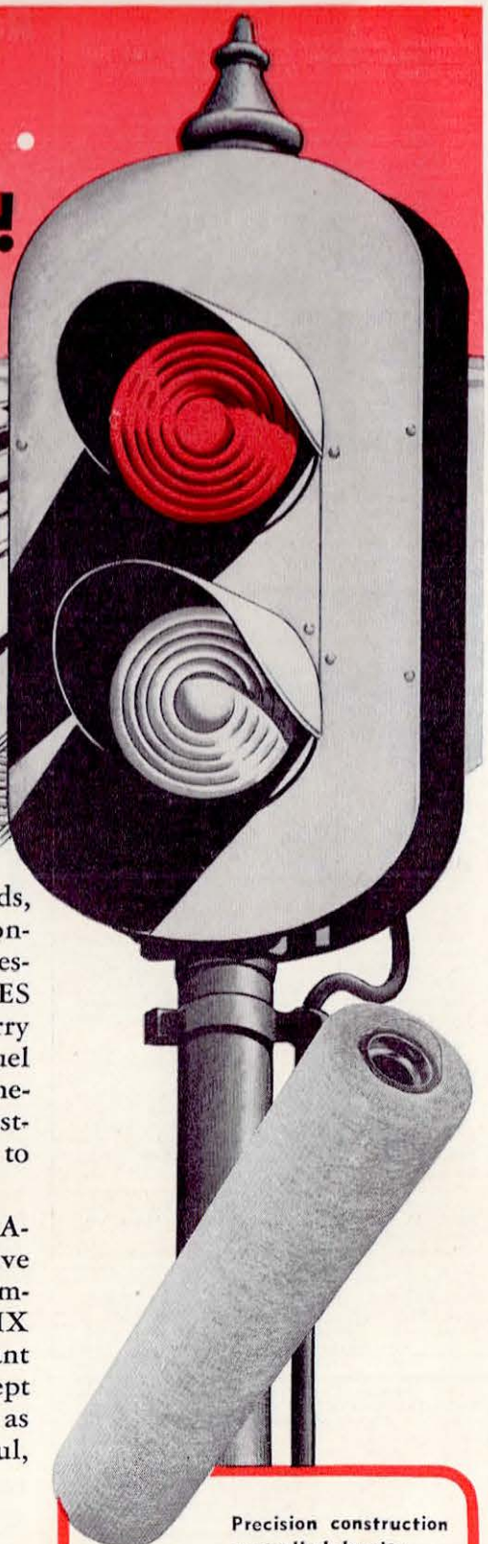

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All these changes made

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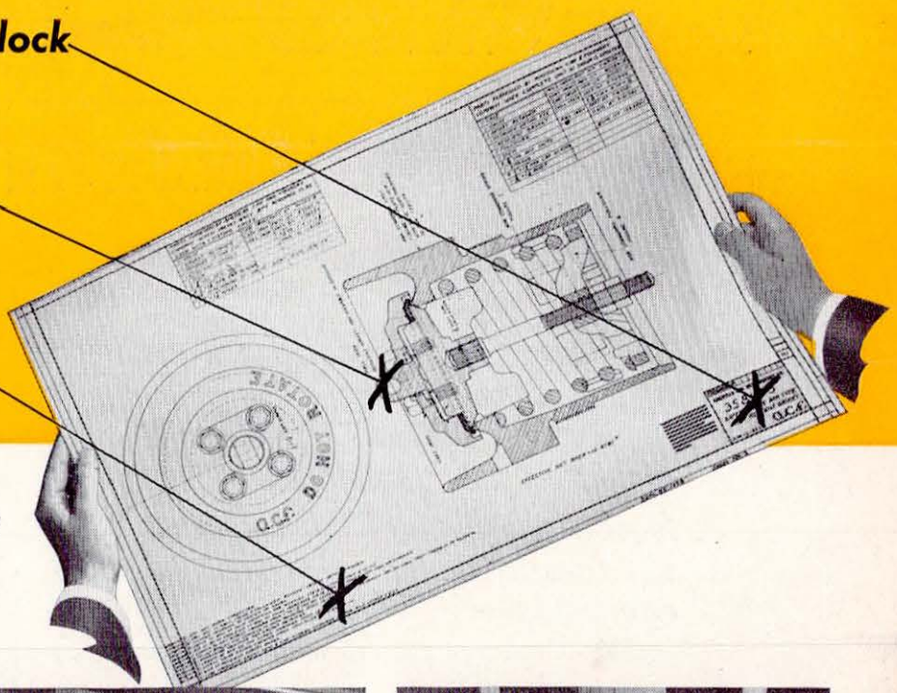
- ***transfer design to cloth***
- ***delete shop notes and lot numbers***



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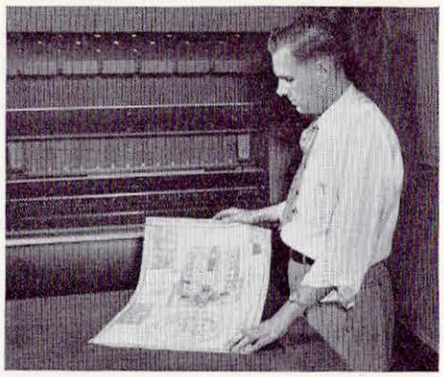

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1943 - Assisted Railroads in developing "sealed-grease lubrication."

1945 - "High Capacity" Bearings. Larger and longer rollers further increased capacity without requiring additional space.

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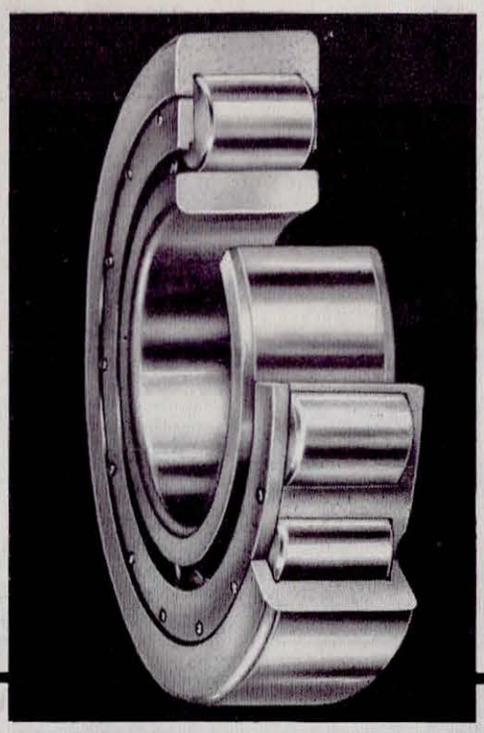
1952 - Longer life M-2 Cage, roller centered, while retaining all previous improvements. Sealed grease lubrication runs up to 500,000 miles without attention.

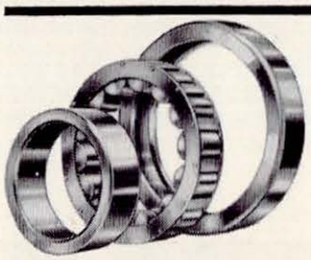
. . . and here are today's



THE SKF PINION END CYLINDRICAL ROLLER BEARING

Crowned rollers assure maximum capacity in minimum space.

Roller riding cage is easier to lubricate. SKF's new M-2 cage provides easy disassembly and inspection of all bearing surfaces.



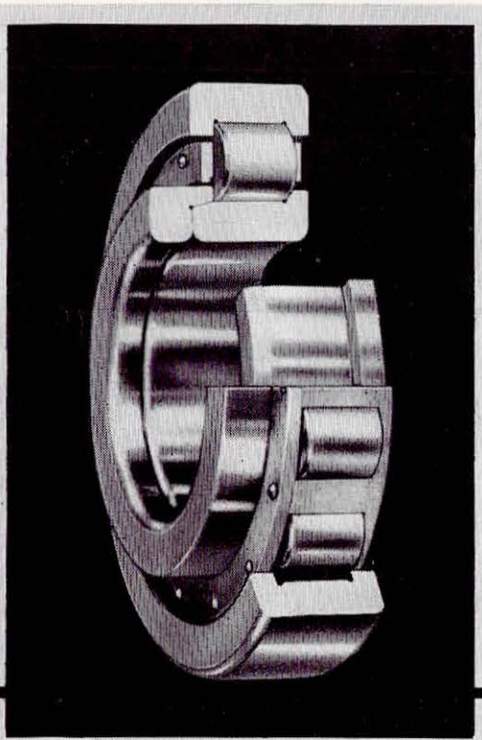
SKF'S NEW M-2 CAGE— USED IN BOTH PINION AND COMMUTATOR END BEARINGS

Here's how easy it is to disassemble for inspection. Just slide out the inner ring. You can then move the rollers out of the inner ring groove, and rollers and M-2 Cage slide right out. Reassembly of the bearing is just as easy.

still leads

BEARING DEVELOPMENT

SKF Traction Motor Bearings



THE SKF COMMUTATOR END CYLINDRICAL ROLLER BEARING

Crowned rollers.

Positively stabilizes the armature and holds it in its proper position in the motor frame.

Has M-2 Roller Riding Cage—same as Pinion End Bearing—for easy disassembly and inspection.

CLINICS: *SKF holds educational clinics throughout the country for railroad maintenance men—practical education which helps them keep traction motor and generator bearings running safely and dependably.*

EDUCATIONAL FILM: *As an extra service in helping you to avoid bearing failures, a 35 mm. full-color sound slide film is now being produced by SKF. Strictly factual, it shows how to handle, install, remove and inspect traction motor bearings—how to make them last longer.*

Announcement of the availability and cost of the film will be made by SKF within the near future.

When you're laying-in anti-friction bearings, you can get design assistance from SKF Field or Home Office men who know the best ways to do the job.

SKF INDUSTRIES, INC., PHILADELPHIA 32, PA.
—manufacturers of SKF *and* HESS-BRIGHT *bearings.* 7440

SKF®
TRACTION MOTOR BEARINGS

If you are interested in

CLEANING BALLAST *on your Railroad*

we stand on our record

Just Ask the Railroads That have used us!

OUR LATEST CUSTOMERS

FRANK SPENO RAILROAD BALLAST CLEANING CO. INC.

306 North Cayuga Street Ithaca, New York

. . . HERE'S WHY THIS NEW JOYCE JACK SPEEDS SERVICING OF DIESEL LOCOMOTIVES, DINING, FREIGHT, AND PASSENGER CARS

LIGHTWEIGHT . . . ONE MAN OPERATED JACK . . . The aluminum alloy frame model is only 1/3 the weight of existing jacks with the same capacity . . . steel frame model only 2/3 weight of existing jacks.

PORTABLE . . . three wheels equipped with semi-pneumatic tires make trundling and positioning an easy *one-man* job.

AIR MOTOR OPERATED . . . for safety, convenience, and labor savings.

JACKS CAN BE USED SINGULARLY OR AS SYNCHRONIZED UNITS OF 2, 3, OR 4 JACKS . . . for positive *level-lifting*.

INTERCHANGEABLE PARTS . . . motor and many internal gear parts are interchangeable with regular line of Joyce air-operated jacks.

SPECIFICATIONS OF ALL PURPOSE SHOP JACK . . . 35 Tons capacity, 4 ft. 4 1/2 inches, rise. Weight aluminum model 1255 lbs., Steel Model 2030 lbs., 90 P.S.I. operating pressure.

WRITE FOR COMPLETE INFORMATION TODAY!

JOYCE JACKS

THE JOYCE-CRIDLAND CO.

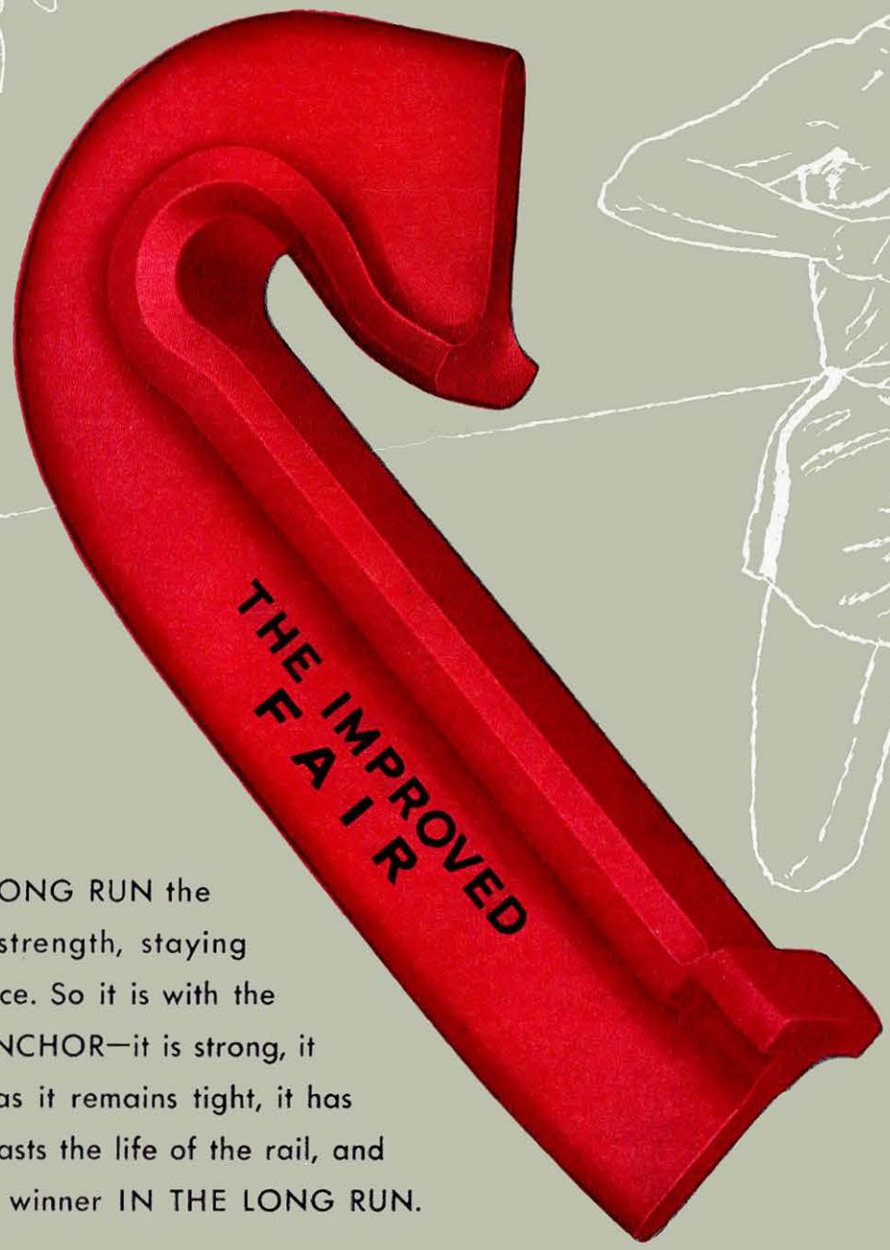
DAYTON 3, OHIO

MANUFACTURERS OF A COMPLETE LINE OF AIR OPERATED JACKS, GEARED SCREW JACKS, RATCHET JACKS AND TRACK JACKS.

IN CANADA: Midland Foundry and Machine Co., Ltd., Midland, Ont.

In the Long Run!

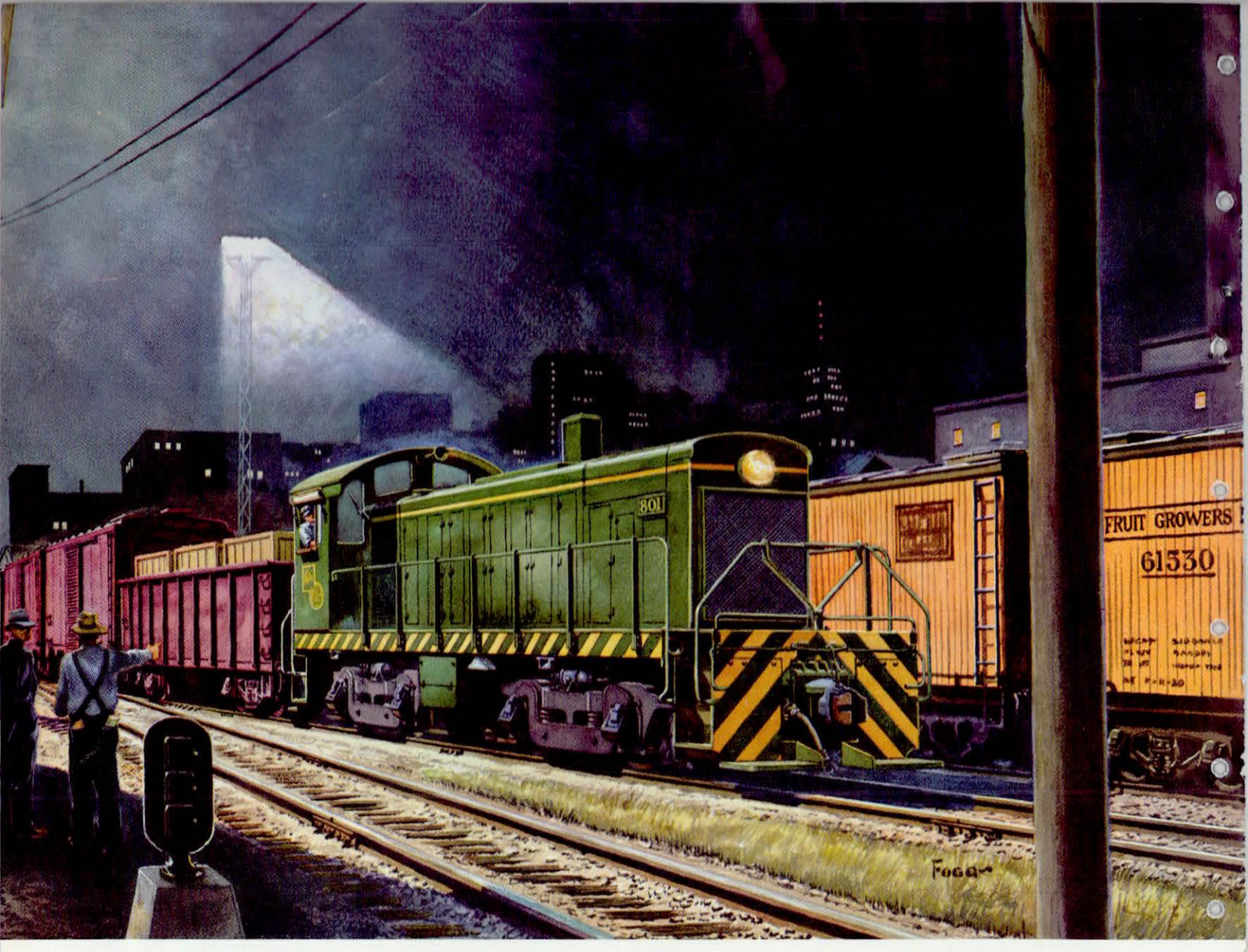
ENDURANCE AND STAYING POWER WINS!



TO WIN IN THE LONG RUN the runner must have strength, staying power and endurance. So it is with the IMPROVED FAIR ANCHOR—it is strong, it has staying power as it remains tight, it has endurance as it outlasts the life of the rail, and proves that it is the winner IN THE LONG RUN.

THE P. & M. CO.

CHICAGO • NEW YORK • DENVER • ST. LOUIS • BOSTON • ST. PAUL • WASHINGTON • SAN FRANCISCO • MEXICO CITY



At its maximum weight of 248,000 pounds, the new Alco-GE yard-transfer switcher delivers 62,000 pounds starting tractive effort. The 800-hp diesel-electric features high-capacity components normally found only on road locomotives.

Condensed Specifications

Track Gauge ..... 4′ 8½″

Principal Dimensions
Height—maximum ..... 14′ 8″
Width—maximum ..... 10′ 0½″
Length—inside knuckles ..... 44′ 11¾″

Weight
On driving wheels..... 230,000 lb
Total locomotive ..... 230,000 lb
Total locomotive (ballasted)..... 248,000 lb

Diesel Engine
One, 4-cycle, in-line, 6-cylinder, turbocharged ..... 800 hp

Running Gear
Trucks..... Two 4-wheel, 2-motor
Wheel diameter ..... 40″

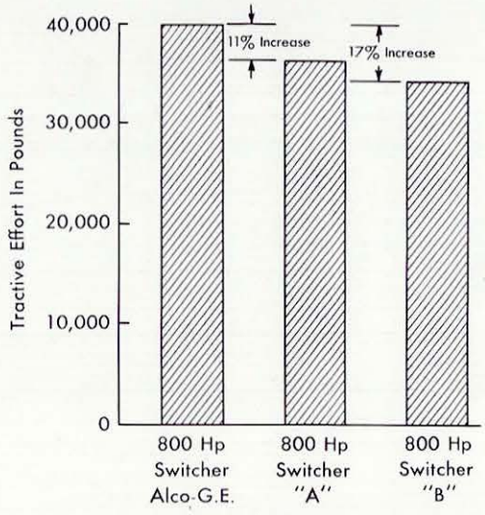
Supplies
Fuel capacity ..... 635 gal
Lubricating oil capacity..... 107 gal
Engine cooling water capacity..... 85 gal
Sand capacity ..... 26 cu ft

Operation on Curve
With train—maximum curvature..... 100 ft
Locomotive alone—Minimum radius.. 100 ft

Continuous Tractive Effort
60 mph (maximum speed)..... 40,000 lb

Traction Motor Gearing
Gear—number of teeth..... 74
Pinion—number of teeth..... 18
Ratio 4.11

COMPARISON OF CONTINUOUS TRACTIVE EFFORT RATINGS



Alco GE

AMERICAN LOCOMOTIVE

New! 800-hp Yard-Transfer Switcher

Delivers 40,000 Pounds Continuous Tractive Effort For High-Speed Transfer Hauls, All Switching Duty

The new 800-hp Alco-GE yard-transfer switcher delivers the highest continuous tractive effort (40,000 pounds) ever produced by a standard diesel-electric of this horsepower. The versatile new locomotive is designed to handle high-speed transfer work as well as *all* yard switching assignments.

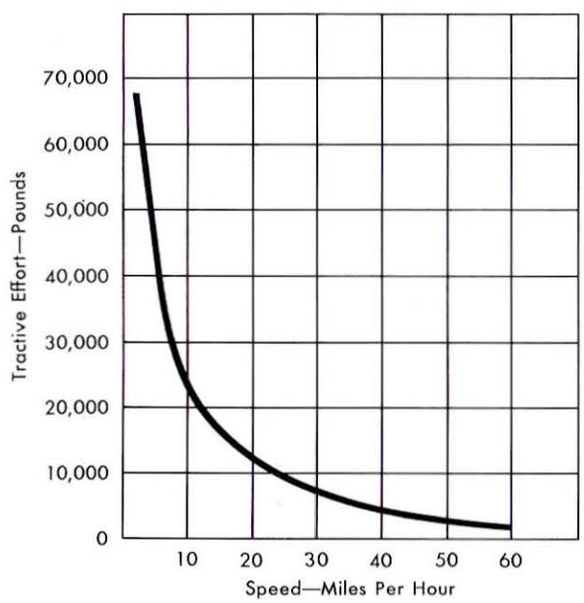
Carrying up 248,000 pounds on its drivers, the "800" is built both for speed (up to 60 mph) and heavy duty. It is the only standard 800-hp diesel-electric to provide traction motors of road locomotive capacity. Motors and air compressors are identical with those proved in service on Alco-GE road locomotives. And the "800" traction generator has a higher current rating than offered by any other switcher of this horsepower.

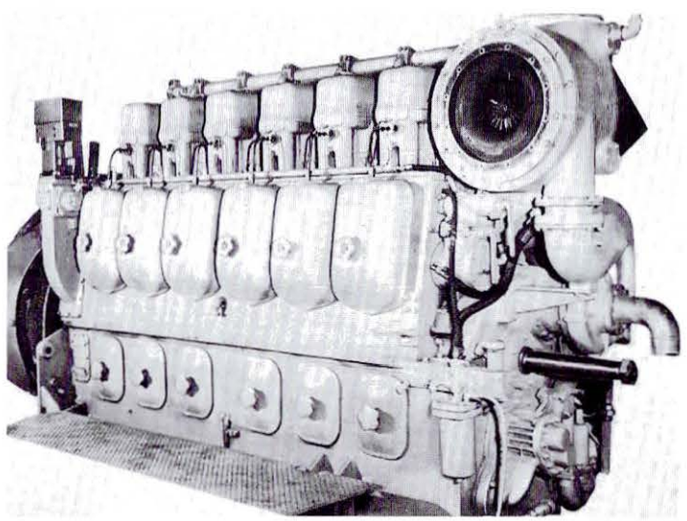
The new Alco-GE locomotive is the only standard 800-hp diesel-electric offering the fuel savings and operating efficiency inherent in turbo-supercharging. The four-cycle, in-line engine also features such improvements as an integral lubricating system and a special, low-volume (85 gal.) cooling system with self-draining radiators for better cooling and faster warm-up.

The new, heavy-duty "800" is designed expressly to do more work for you with greater efficiency at less cost. For details, contact your assigned Alco-GE locomotive representative, or write ALCO-GE, BOX 1065, SCHENECTADY, NEW YORK. 113-316

Some reasons why the Alco-GE 800 offers you MORE for your money . . .

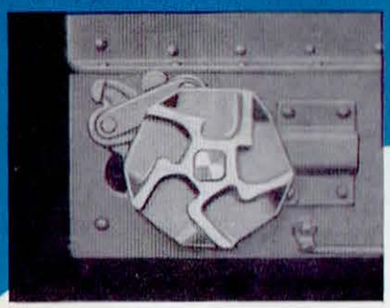
- **Traction motor capacity up to 15% greater than competing models.**
- **Cooling water requirements up to 66% less than competing models.**
- **Only 800-hp locomotive with integral lubricating system.**
- **Only 800-hp locomotive with constant horsepower at all altitudes.**



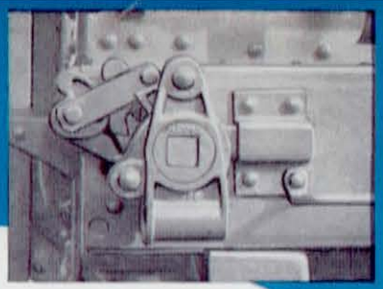


This compact six-cylinder engine is turbo-supercharged for outstanding fuel economy. Engine has integral lubricating system, develops 800-hp at 1000 rpm.

and GENERAL ELECTRIC

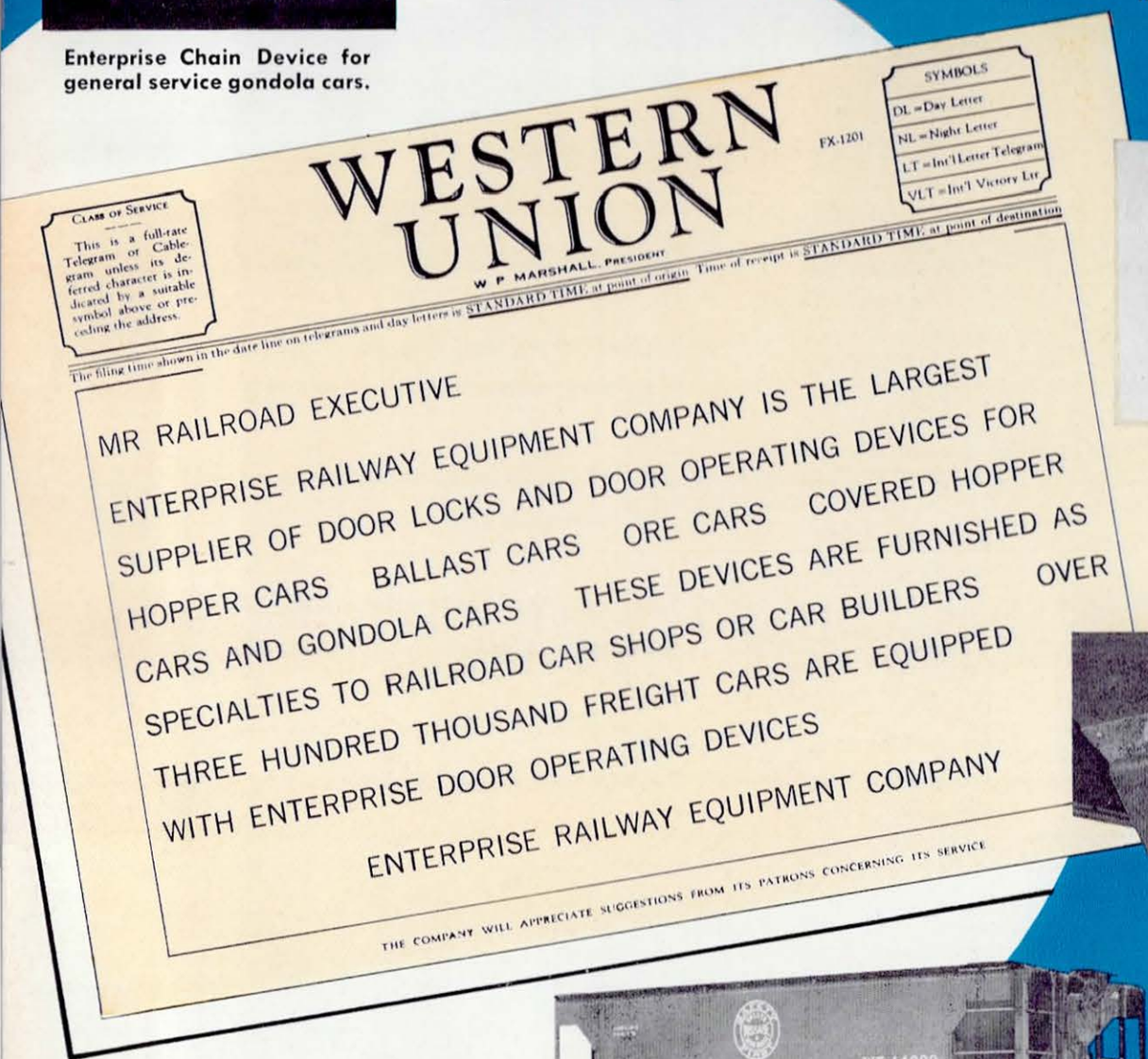


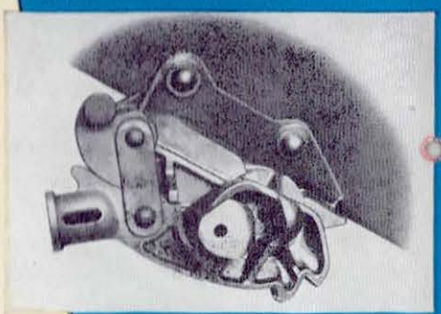
Enterprise Chain Device for general service gondola cars.



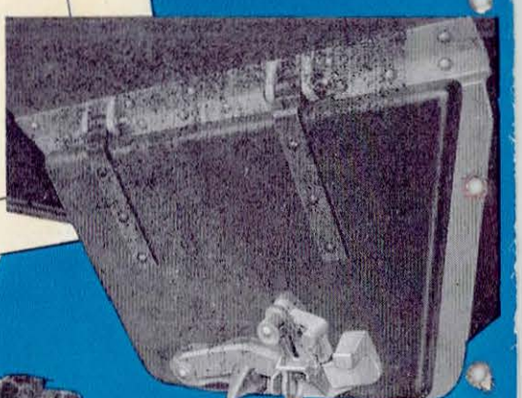
Enterprise Link Device for general service gondola cars.

Enterprise Outlet for covered hopper cars and L.C.L. bulk


WESTERN UNION
W P MARSHALL, PRESIDENT
FX-1201
SYMBOLS
DL = Day Letter
NL = Night Letter
LT = Int'l Letter Telegram
VLT = Int'l Victory Ltr
CLASS OF SERVICE
This is a full-rate Telegram or Cable-gram unless its deferred character is indicated by a suitable symbol above or preceding the address.
The filing time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination
MR RAILROAD EXECUTIVE
ENTERPRISE RAILWAY EQUIPMENT COMPANY IS THE LARGEST SUPPLIER OF DOOR LOCKS AND DOOR OPERATING DEVICES FOR HOPPER CARS BALLAST CARS ORE CARS COVERED HOPPER CARS AND GONDOLA CARS THESE DEVICES ARE FURNISHED AS SPECIALTIES TO RAILROAD CAR SHOPS OR CAR BUILDERS OVER THREE HUNDRED THOUSAND FREIGHT CARS ARE EQUIPPED WITH ENTERPRISE DOOR OPERATING DEVICES
ENTERPRISE RAILWAY EQUIPMENT COMPANY
THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

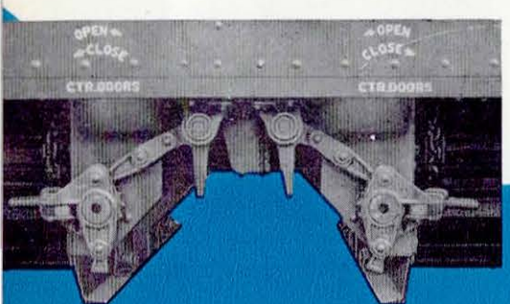


Enterprise Type D Door Operating Mechanism for controlled discharge of hopper cars. Doors operate in pairs.



Enterprise Unit Door Latch for hopper cars.

Enterprise Center Discharge Ore Car. Doors operative from either side.



Enterprise Ballasting Mechanism for multi-service ballast cars.

4460 S

Door Operating Devices Exclusively Since 1905

ENTERPRISE RAILWAY EQUIPMENT COMPANY

59 East Van Buren Street • Chicago 5, Illinois

Unizone®

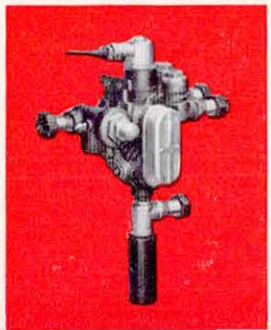
Moduzone®

divide your maintenance time by 12

"Today, with our Vapor Unizone and Moduzone installations, we maintain the heating equipment on an *entire 12-car train* in less time than required for a *single* car using the old zone system."
These are words of experience . . . of a railroad man whose job it is to *service* car-heating equipment. Vapor simplicity knows no equal for time-saving, cost-saving maintenance.

THE AMAZING **VAPOR UNIZONE REGULATOR**

High performance efficiency! Quick emergency servicing! Low-cost preventive maintenance! You get all three with this Unizone Regulator that controls *all* heating-steam flow. On open or room cars, it's mounted under the floor for easy, convenient access. Over 1000 existing cars have been converted to Unizone or Moduzone, and these modern Vapor heating systems now are specified for most of the new cars on order.



VAPOR HEATING CORPORATION
80 East Jackson Blvd., Chicago 4, Ill.

New York • St. Paul • Denver • St. Louis • Atlanta
Washington • Philadelphia • San Francisco • Houston
Jacksonville • Richmond • Montreal • Los Angeles

On your existing cars . . .

Slash car heating costs and

How the railroads benefit from competition

Competition created this superior Honeywell car heating system. It's another example of the benefits which the nation's railroads receive with Honeywell competing against others in the railroad car heating field. These benefits are expressed not only in better ways to do old jobs, but in lower prices achieved through competitive bidding.

increase passenger comfort

with the New Honeywell-Controlled Steam System

You can slash car heating costs by making *complete* use of the steam in the system. Wasted steam is costly. So is constant maintenance and repair due to equipment duplication. That's why Honeywell, as a supplier and in the performance of a competitive function, has developed a new, simplified steam distribution system for existing passenger cars.

It's a Multi-Jet Method and it assures proper heat distribution—almost impossible to obtain in outmoded systems, especially in mild weather. Steam condenses at the entry point of the finned surfaces in these old-fashioned systems and causes heat "pile-up." A few passengers "burn up" while most are chilly.

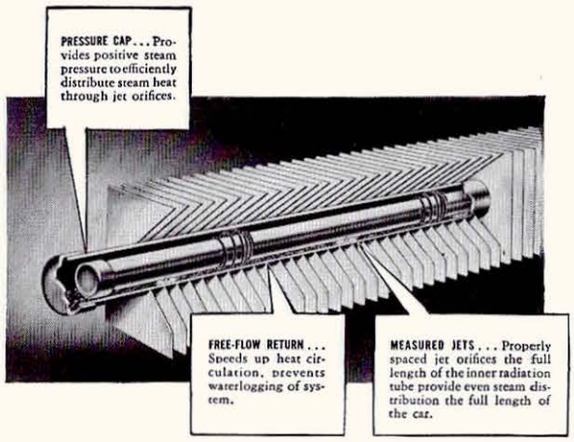
But passengers are enthusiastic about the even, *comfortable* temperatures in cars with Honeywell Multi-Jet Distribution . . . and *you'll* like the savings on steam and maintenance.

You save 3 ways with Multi-Jet Distribution . . .

1. *Less under car piping*—therefore less steam waste. Steam savings have been in excess of 40% over existing systems in some cases.

2. *Less maintenance.* Fewer valves and less piping are needed in the Honeywell system . . . the Multi-Jet steam distribution eliminates unnecessary duplication of equipment.

3. *Reduced road failures.* Rugged railroad operating conditions don't hamper Honeywell's dependable electronic control system and steam specialties.


PRESSURE CAP... Provides positive steam pressure to efficiently distribute steam heat through jet orifices.
FREE-FLOW RETURN... Speeds up heat circulation, prevents waterlogging of system.
MEASURED JETS... Properly spaced jet orifices the full length of the inner radiation tube provide even steam distribution the full length of the car.

Here's how Multi-Jet Distribution works

This cut-away shows how orifices are positioned in the inner radiation tubes. A pressure cap is placed at the end of the steam distribution tube to insure *full-length* radiation under *all* heating loads. This prevents "heat pile-up" and creates even heat distribution for a pleasant, comfortable trip for your passengers.

Moduflow Liquid System for new cars

Exhaustive tests have convinced more and more railroads of the superiority of low-cost Moduflow *Liquid* Heating System for new passenger cars. Passenger reactions were checked on actual trips, and riders heartily approved the uniformly comfortable cars... even when outdoor temperatures ranged from 7 to 72 degrees! We strongly recommend this *Liquid* Heating System, and will be glad to send full details on request.

Act now! See how easily this new Honeywell steam system can be installed on existing cars during the normal shop period. A Honeywell railroad specialist will be glad to show you... he can also show you how to take full advantage of the dependable Honeywell Electronic Temperature Controls, which feature Push-Button Inspection, and even more maintenance savings. Contact your local Honeywell office today for details. Or... write Minneapolis-Honeywell Regulator Co., Dept. RA-10-214, Minneapolis 8, Minn.

MINNEAPOLIS
Honeywell

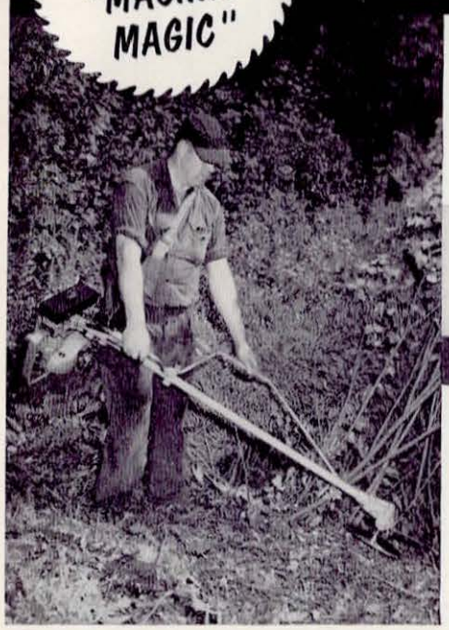
H HONEYWELL Transportation Division

FREE BOOKLET REVEALS "MACHINE MAGIC"

ONE MAN DOES THE WORK OF 6

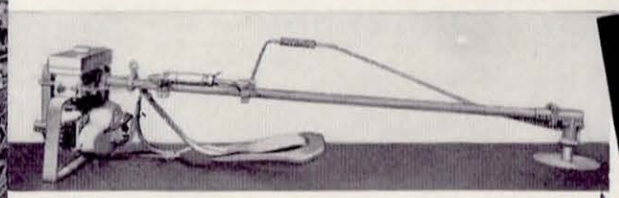
WITH THIS REMARKABLE

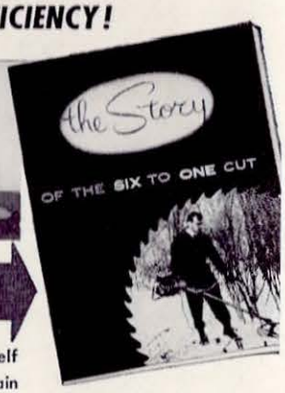
POWER-DRIVEN BRUSHCUTTER



BRUSHMASTER®

REDUCES COSTS! . . . INCREASES EFFICIENCY!





FREE BOOKLET SHOWS HOW TO REDUCE BRUSH CLEARANCE COSTS!

Brushmaster is the talk of the industry . . . and is now proving itself in the field with many and varied companies which must maintain right-of-way clearance. Cuts all brush, from matted grass to saplings 4" in diameter. Operator completely protected, cannot come in contact with blade. One man operated, lightweight, it goes anywhere . . . reaching overhanging branches and vines . . . and cropping close to the ground! Vibration-free, clutch controlled, positive drive. Send for booklet today!

BRUSHMASTER SAW, INC.
84M EMERALD ST., KEENE, N. H.

Subsidiary of **Harrington & Richardson, Inc.**, established 1871.
Manufactured and sold in Canada by **H&R Arms Co., Ltd.** Montreal, Canada

ON PRINCIPAL RAILROADS THROUGHOUT THE COUNTRY CAR INSPECTORS FAVOR . . . STAR ELECTRIC LANTERNS

WRITE FOR CATALOG NO. 52-2

MODEL NO. 180

Most popular inspection lantern. It's light in weight, rugged in construction and non-corrosive. Has fixed handle and adjustable base for directing light at any angle. Safety toggle switch is under handle so you can snap it on with thumb, leaves other hand free. Takes standard bulbs and 6-volt battery.

STAR HEADLIGHT & LANTERN CO.
HONEOYE FALLS, N. Y.
GUIDING THE WORLD'S RAILROADS SINCE 1889

ROLLING STOCK

40 Ton Steel Sheathed Box Cars
50 Ton All Steel Gondolas
70 Ton All Steel Gondolas
8000 Gal. Tank Cars Cl. III
Coiled—Non Coiled
50 or 70 Ton Flat Cars 40' Long
30 Yd. Magor Drop Door Cars
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Jordan Spreader
Locomotives—Car Parts—Tanks

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USED EQUIPMENT TO SELL?

ADVERTISE IT IN THE

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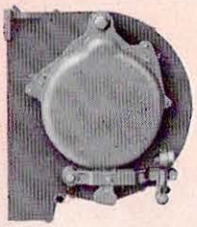
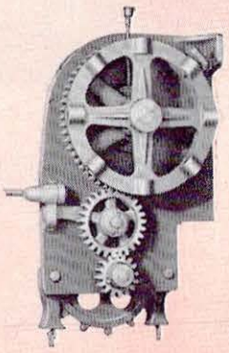
of the Classified Department.

Rolling Steel Doors

Standard or Automatic Underwriters' Labeled Types!



Mahon Release Device and Governor on the Automatic Closing Mechanism of a Mahon Underwriters' Labeled Rolling Steel Fire Door. In case of fire, Fusible Links release the closing mechanism and the door closes automatically.



Mahon Release Device on the Chain-Gear Operator of a Mahon Mechanically Operated, Underwriters' Labeled, Automatic Rolling Steel Fire Door. Fusing of the Fusible Link, which releases the Automatic Closing Mechanism, simultaneously disengages the Chain-Gear Operator.

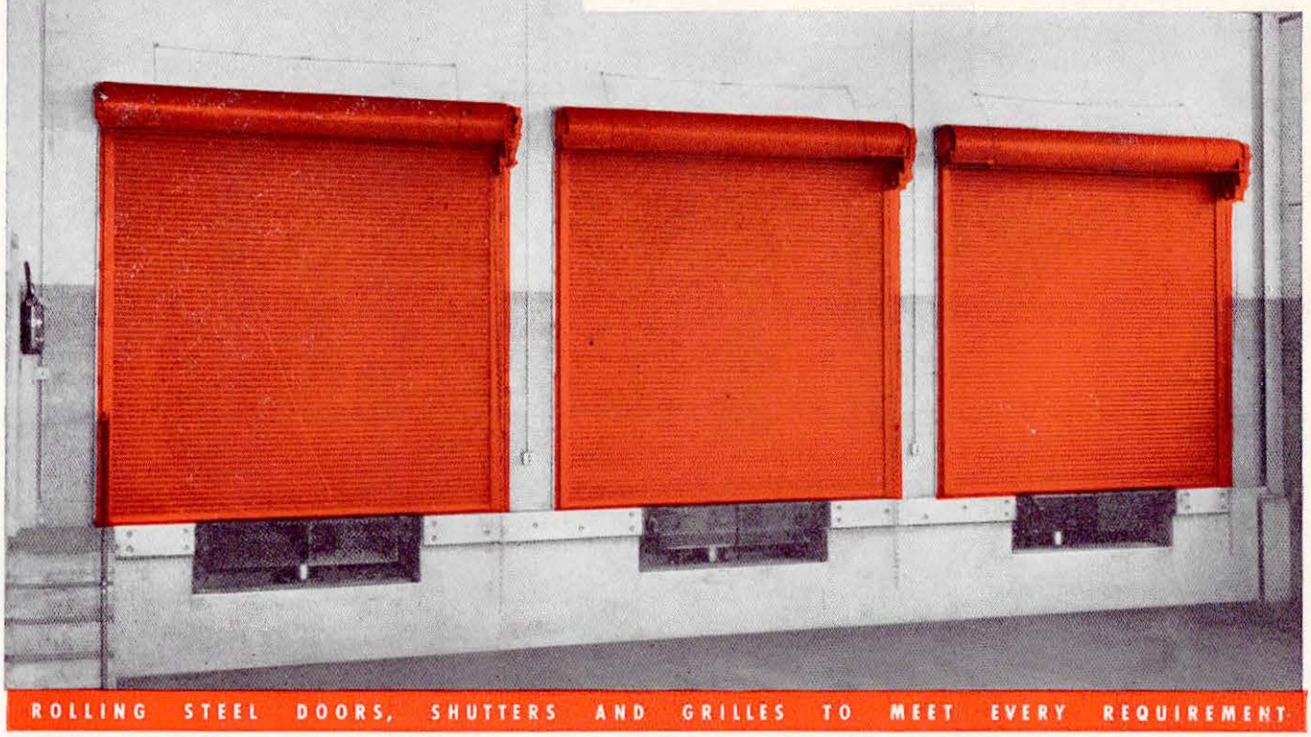
Manually, Mechanically, or Power Operated

Below you see three Mahon Automatic Underwriters' Labeled Rolling Steel Doors installed on fire-wall openings of an enclosed shipping dock. These doors normally remain open, but are equipped with mechanical chain-gear operators which permit closing or opening at will. If a fire should occur while they are in the open position, they automatically close and prevent the spread of fire through the openings. This is one use for one type of rolling steel door. Many types are produced by Mahon to meet virtually any door requirement. Mahon quick-opening, quick-closing power operated rolling steel doors offer more desirable features than any other type of door . . . the vertical roll-up action utilizes no usable space either inside or outside the door opening. There are no overhead tracks or other obstructions to interfere with crane operations. No other type of door offers these advantages of space economy and compactness in operation. In addition, rolling steel doors are permanent—their all-metal construction assures a lifetime of trouble-free service and maximum protection. When you select a rolling steel door, check specifications carefully . . . you will find many extra-value features in Mahon doors. See Sweet's Files for complete information including Specifications, or write for Catalog G-54.

THE R. C. MAHON COMPANY

Detroit 34, Michigan • Chicago 4, Illinois • Representatives in all Principal Cities

Manufacturers of Rolling Steel Doors, Grilles, and Automatic Closing Underwriters' Labeled Rolling Steel Fire Doors and Shutters; Insulated Metal Walls and Wall Panels; Steel Deck for Roofs, Partitions and Permanent Concrete Floor Forms.



ROLLING STEEL DOORS, SHUTTERS AND GRILLES TO MEET EVERY REQUIREMENT

Three Mahon Underwriters' Labeled, Automatic Rolling Steel Fire Doors installed on openings to an enclosed truck loading dock in a new plant for Towne-Robinson Nut Co., Detroit, Mich. Austin Engineers, Inc., Designers. The Austin Company, Cleveland, Ohio, Gen. Contrs.

MAHON

The wonderful flexibility and economy of America's railroad systems can now be used for shipping many products which could never be shipped in bulk before!

General American's new Airslide car permits bulk shipping of high or low density materials. It eliminates all the expenses of individual, small unit containers. And it can be loaded by gravity and unloaded at any siding by *any* conveying system. Ladings are protected against shrinkage and leakage with minimum possibility of infestation and contamination.

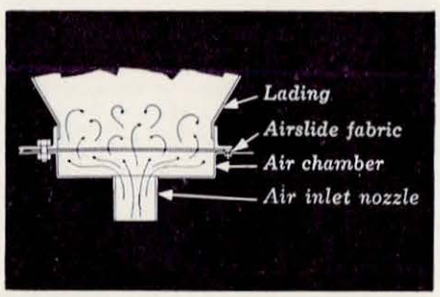
the great economies of BULK SHIPPING BY RAIL are now

General American's new Airslide car for rent

We keep Airslide cars rolling for you, service them in our own shops throughout the country.

AIRSLIDE IN CAR AVOIDS BRIDGING AND PACKING

With approximately one pound of air pressure, the lading is activated and flows quickly and evenly through the outlet valves on the bottom of the Airslide car. This permits unloading by any type of conveying system.



Ship in bulk—
ship by rail

ship via AIRS

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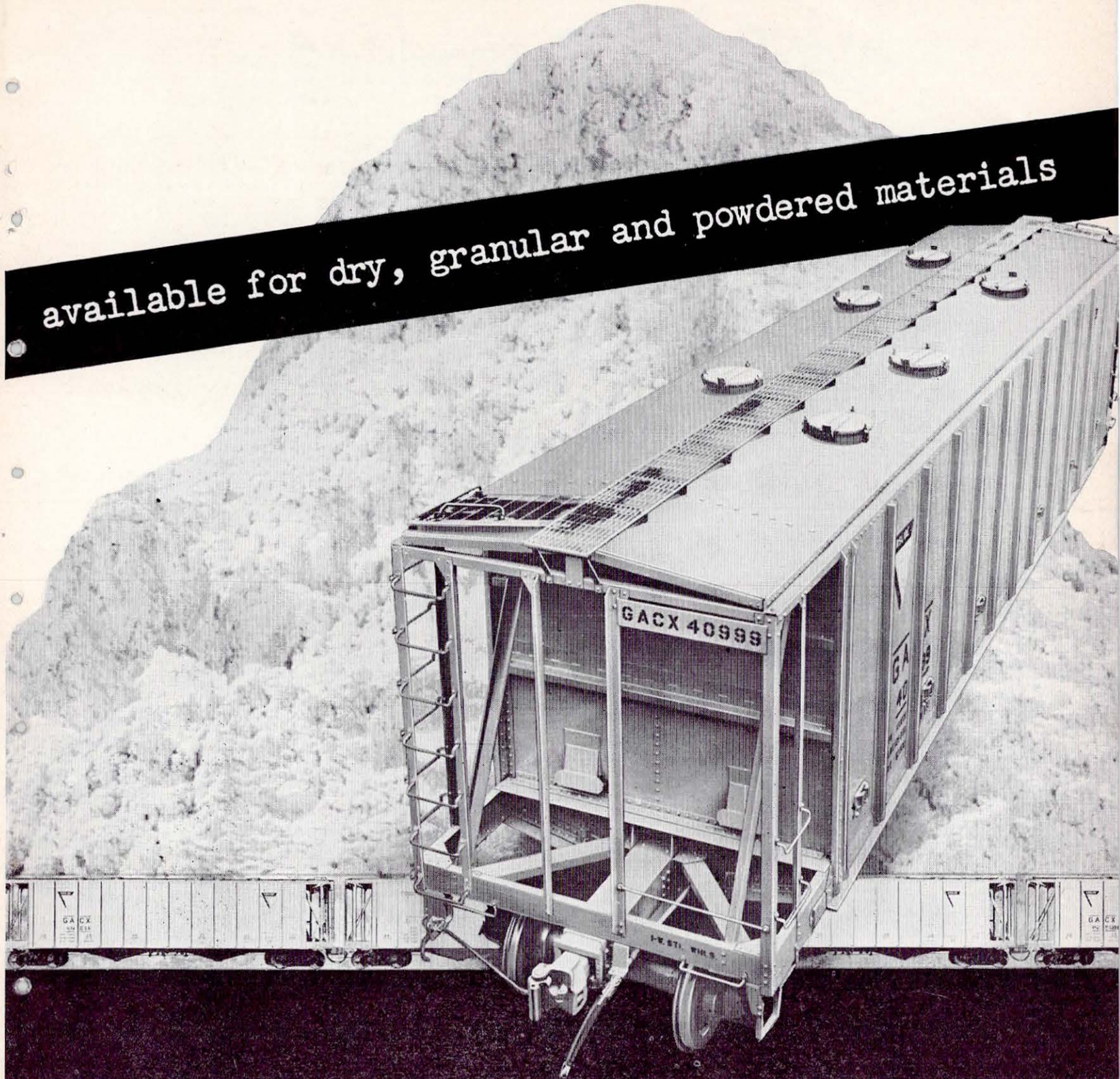

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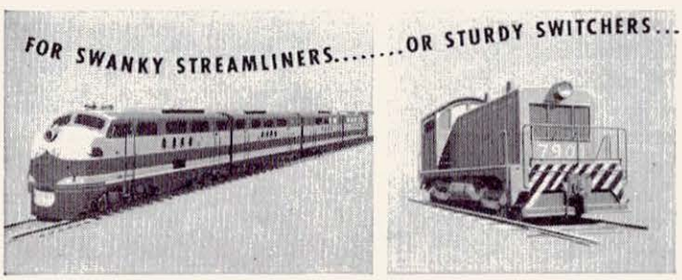

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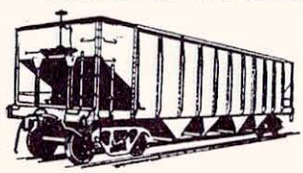

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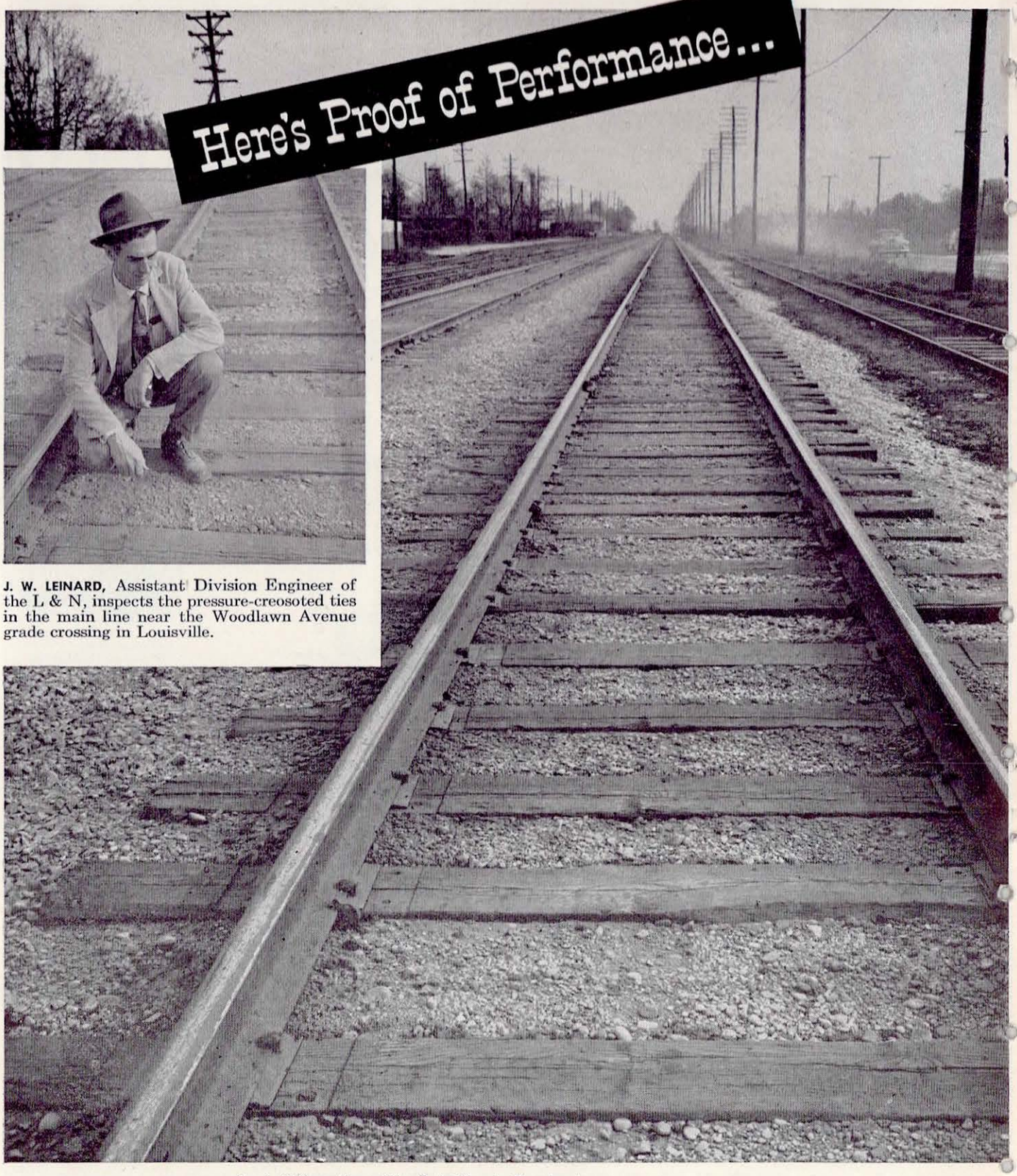
The L & N is getting an average of 24

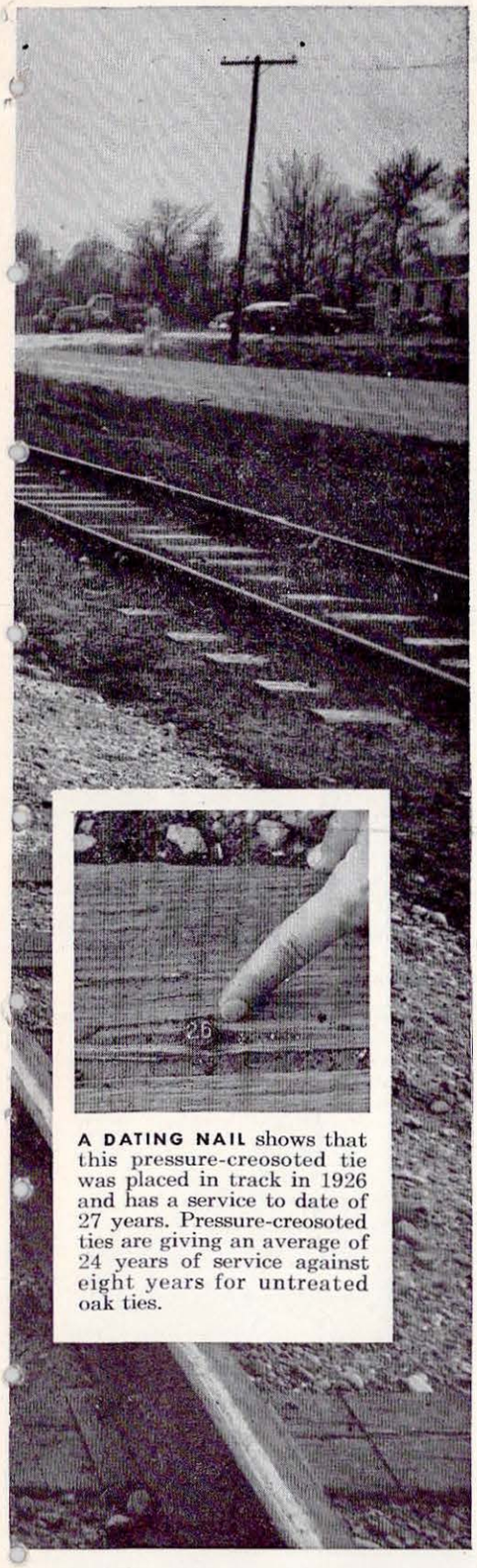
Here's Proof of Performance...

J. W. LEINARD, Assistant Division Engineer of the L & N, inspects the pressure-creosoted ties in the main line near the Woodlawn Avenue grade crossing in Louisville.



THE PRESSURE-CREOSOTED crossties in this section of the L & N main line track are approximately 20 to 25 years old. The L & N specifies a mixture of 80% Creosote and 20% coal tar and its ties are treated by the Reuping process.

years' service from nearly 19 million pressure-creosoted ties



A DATING NAIL shows that this pressure-creosoted tie was placed in track in 1926 and has a service to date of 27 years. Pressure-creosoted ties are giving an average of 24 years of service against eight years for untreated oak ties.

With 7,443 miles of track stretching through 13 states, the Louisville & Nashville Railroad had 19,271,952 crossties in track at the end of 1952. Of this number, 97.6% are pressure-treated with Creosote.

The L & N began using pressure-creosoted ties in 1914 and has used creosote exclusively for treating since 1921. Ties are of wood native to the area, mostly red oak in Kentucky and Tennessee, but with some white oak, beech and hard maple, and black gum and pine farther south.

Edward Wise, Engineer Maintenance of Way, says:

"There is no question but that creosote is the best treatment we can give crossties. We know that we got only 8 years from an untreated tie, and are now obtaining about 24 years' life from an oak tie in northern territory, treated with creosote, and if it were not for the damage to ties caused by 'plate-cutting' a longer life could be obtained. Further, that only a small percentage of removals of pressure-creosoted ties before the 15th year are actually due to decay. Mechanical wear caused by 'plate-cutting' is responsible for most failures, but damage to ties by 'plate-cutting' is gradually being overcome through the use of larger tie plates."

The Railroad's Assistant Engineer of Valuation, D. Porter Bibb, has prepared a report on the use of creosoted ties on southern railroads that says:

"A southern railroad like the L & N has a problem of its own due to much more frequent precipitation and warmer annual temperatures. We definitely find that we get 20% less life from a tie laid in the deep South with its average annual precipitation of 60 inches and temperatures of 65-70° than we do from a similar tie laid in Kentucky with its precipitation of 47 inches and with 55-57° annual temperature. The toxicity of a pressure-creosoted tie impedes fungus decay from getting into the wood surfacing."

On the basis of records like this, you can be sure of the longest possible life when your ties and timber are treated with Creosote. And for a *uniform* product that gives *uniformly good results*, be sure that U·S·S Creosote is used. It combines the toxicity and permanence essential for effective wood preservation. For complete information, contact our nearest Coal Chemical sales office or write directly to United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pa.

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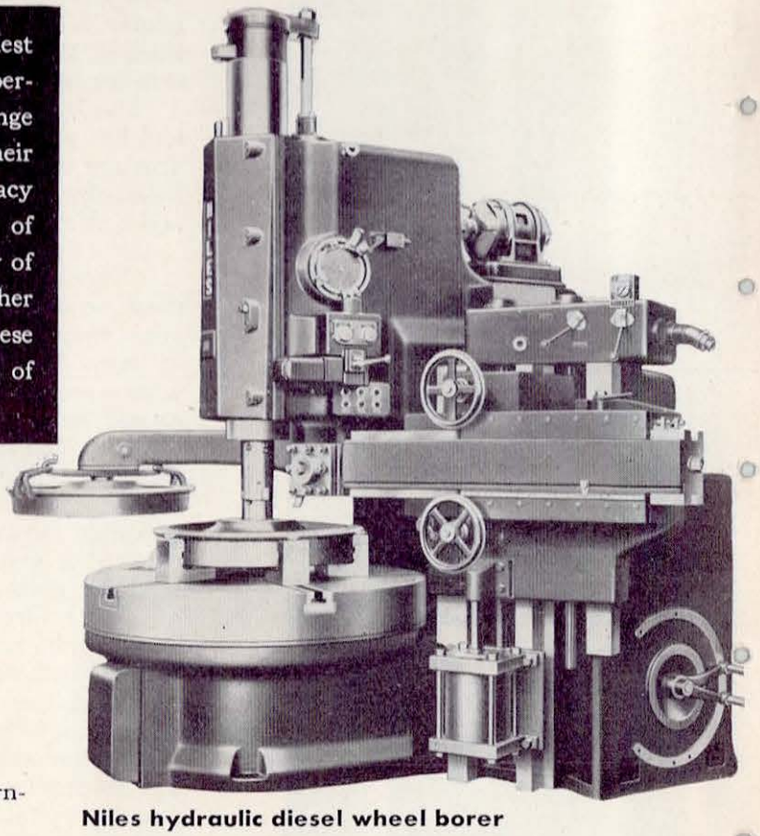
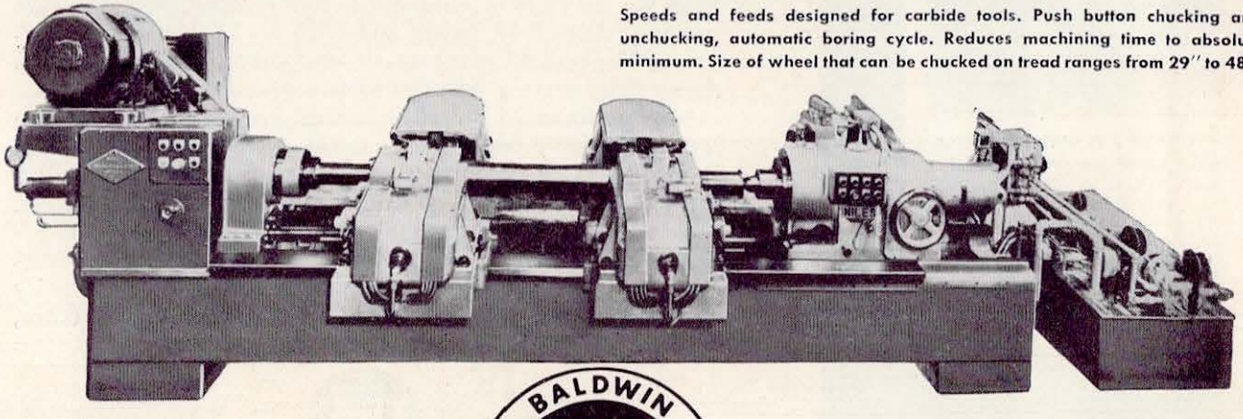
hydraulic car wheel borers
hydraulic journal bearing borers
tire boring mills (72", 90", 102")
axle lathes
locomotive journal turning lathes
diesel and car wheel lathes (42", 52")
driving wheel lathes (79", 90")
vertical car wheel lathes
hydraulic axle centering machines
90" balanced quartering and crank pin turning machines, etc.



Niles hydraulic diesel wheel borer

Speeds and feeds designed for carbide tools. Push button chucking and unchucking, automatic boring cycle. Reduces machining time to absolute minimum. Size of wheel that can be chucked on tread ranges from 29" to 48".



Niles hydraulic axle burnishing lathe

Independently or simultaneously burnishes journals and fillets of new or refinished axles. Designed for ruggedness, unusually high production. Handles axle journals of from 3¾" to 9⅞" diameter, up to 14" long.

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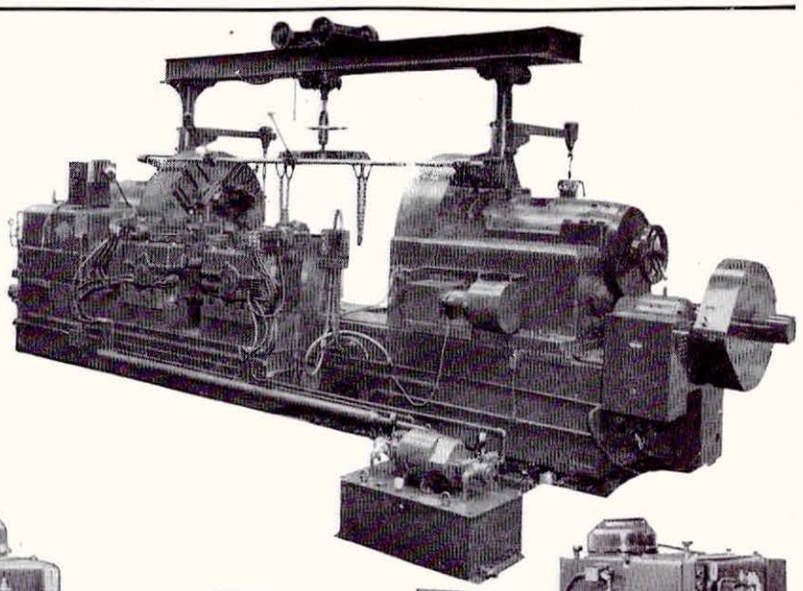
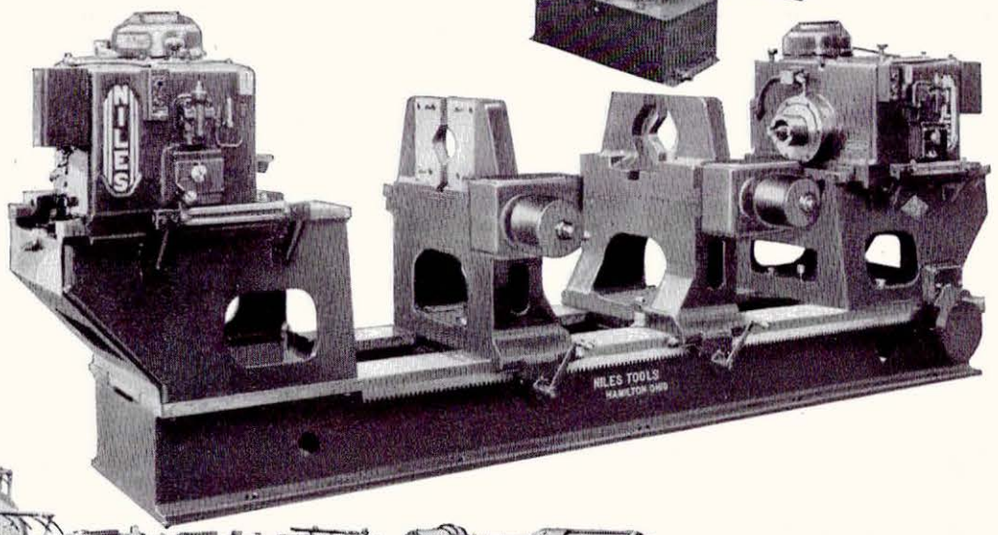


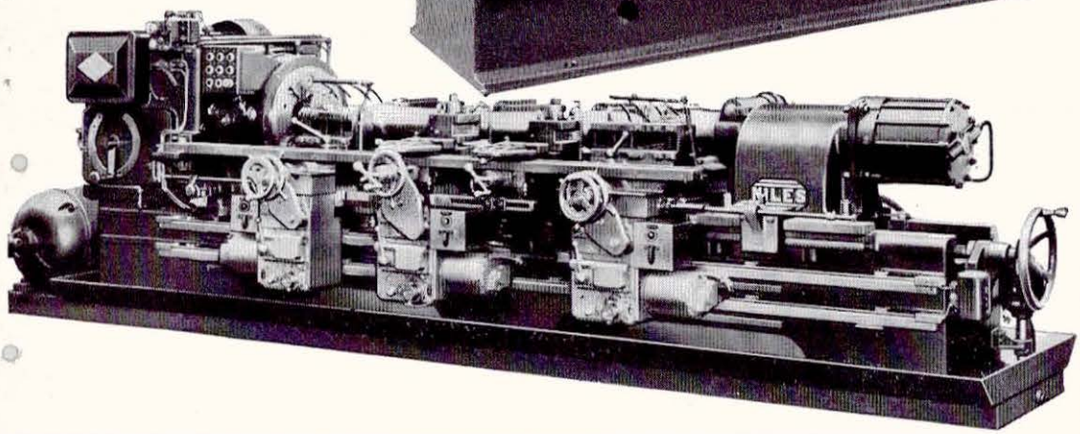
Niles hydraulic car wheel lathe

Designed for heaviest duty with tungsten carbide or high-speed steel tools. Accuracy and finish comparable to those obtained by grinding. Optional profiling attachment permits further saving in time per set. Turns wheels with tread diameters from 26″ to 52″.



Niles hydraulic centering machine

Centers new axles or renews centers on mounted or unmounted axles prior to turning. Permits easy chucking of individual and related concentricity. Action is automatic. Assures high production and uniform dimensional results. Maximum distance between centers with cutters in place 11′6″.



Niles end drive axle lathe

Machines new or used axles over their entire length in ⅓ to ½ the time ordinarily required. Leaves no indentation from driving jaws. Swing over carriage: 10¾″. Swing over bed: 31″. Max. distance between centers: 9′0″.

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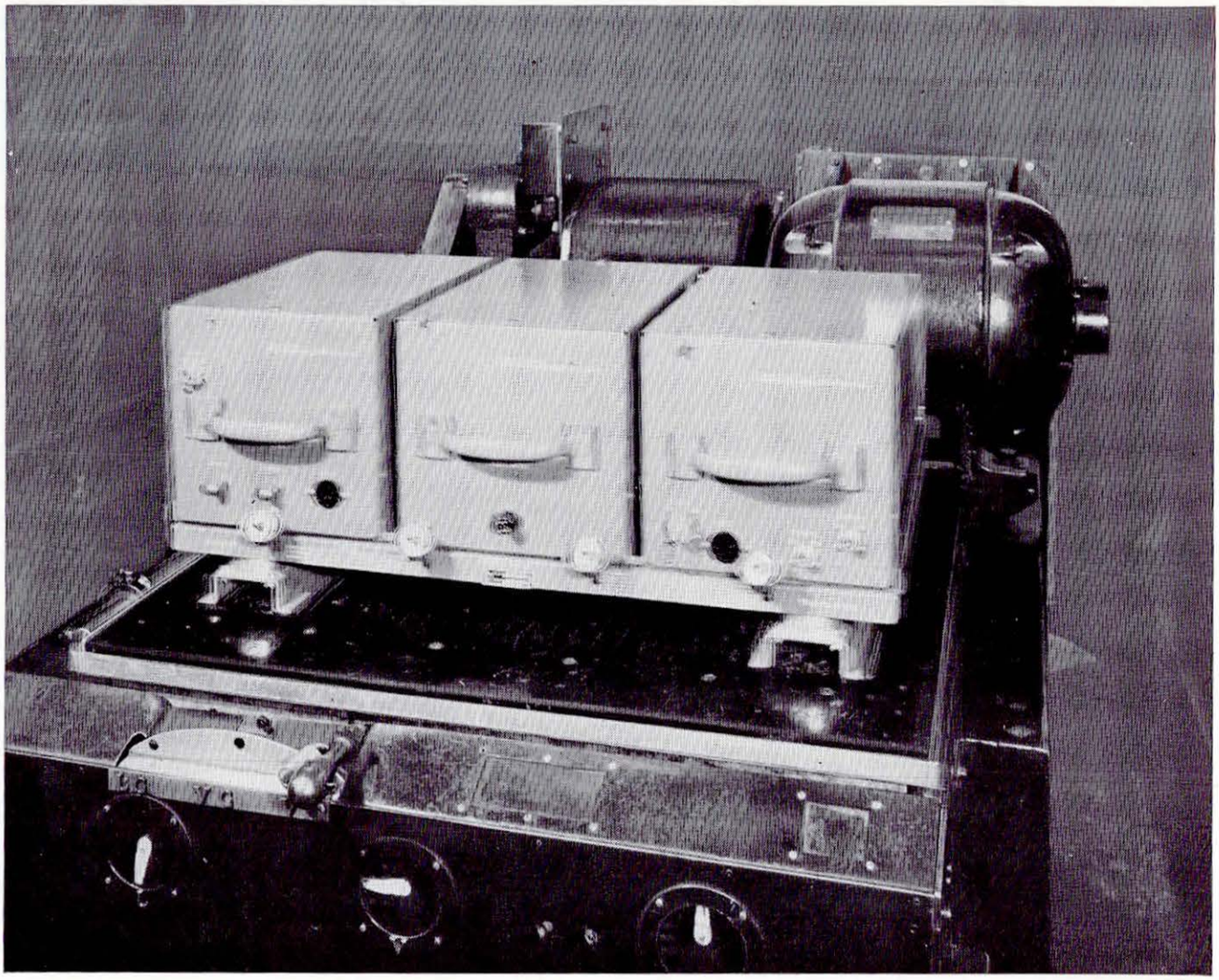

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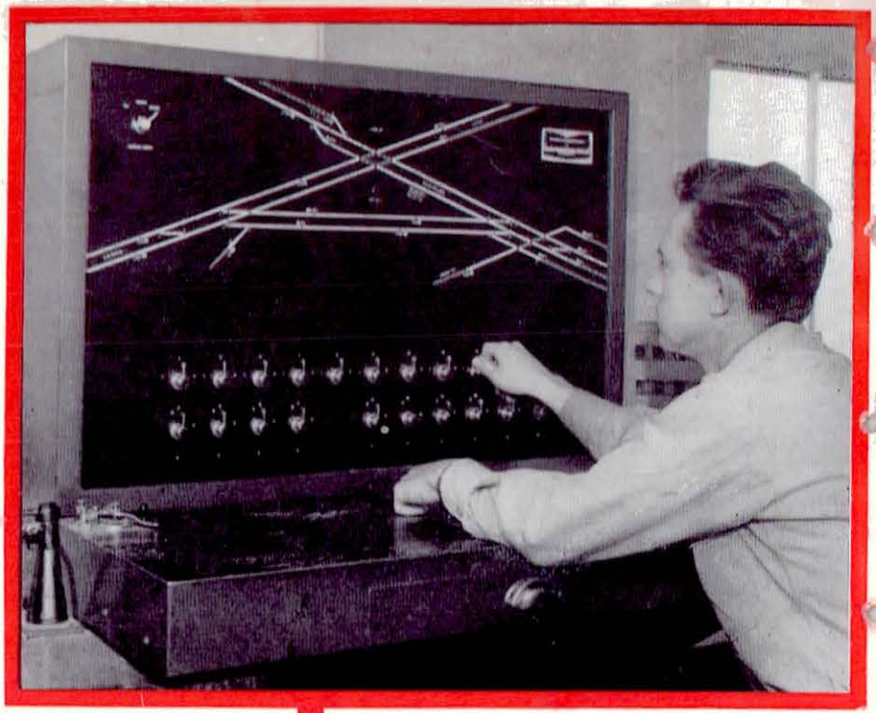
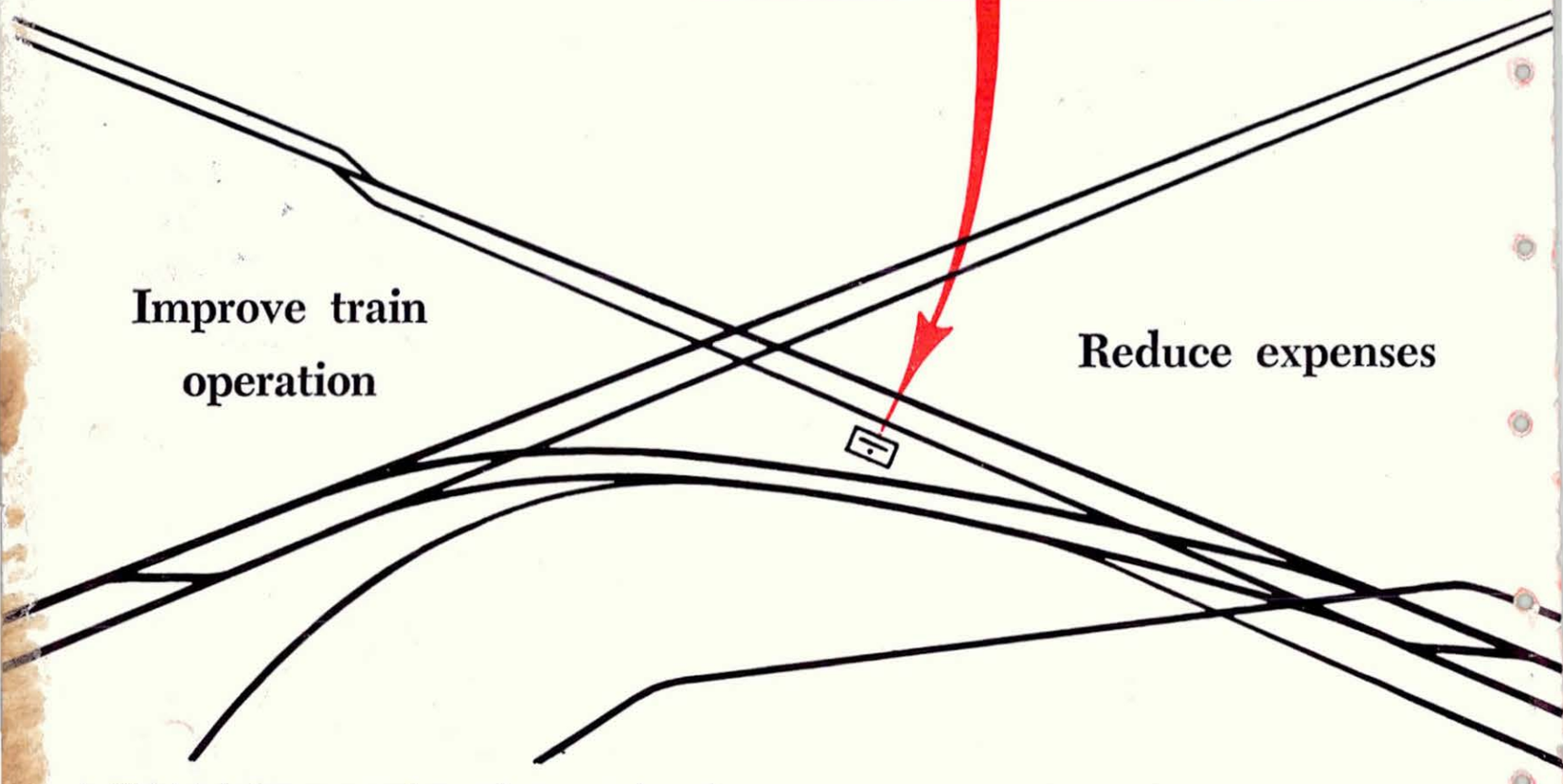
Modernize with G-R-S ALL-RELAY INTERLOCKING





A 1914 interlocker on a southern railway, worn beyond possibility of economical repair, was recently replaced with a G-R-S all-relay interlocking.

Now traffic at this important junction, 60 to 65 trains daily in addition to switching moves, is handled with lower operating costs.

You can benefit by modernizing with G-R-S all-relay interlocking systems. Consult your G-R-S district office for data and estimates.

GENERAL RAILWAY SIGNAL COMPANY

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